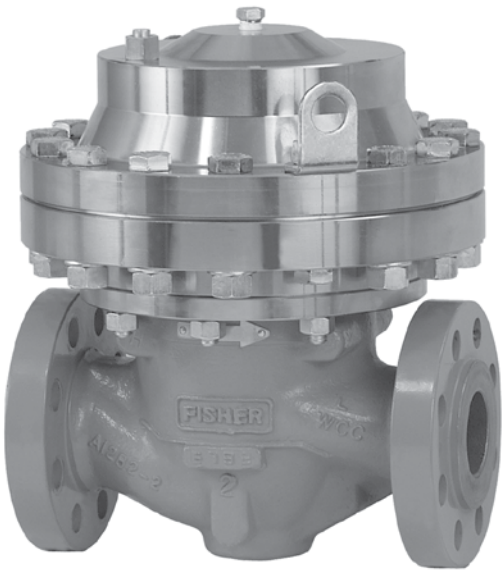
EZH and EZHSO Series
Pressure Reducing Regulators



W8480

Figure 1. *EZH Series Pressure Reducing Regulator*

W8346

TYPE PRX/120

W8348

TYPE PRX/120-AP

Figure 2. *PRX Series Pressure Reducing Pilots*

⚠ WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.

Fisher® regulators must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Process Management Regulator Technologies, Inc. (Emerson™) instructions.

If the regulator vents gas or a leak develops in the system, service to the unit may be required. Failure to correct trouble could result in a hazardous condition.

Call a gas service person to service the unit. Only a qualified person must install or service the regulator.

Introduction

Scope of the Manual

This manual provides installation, startup and maintenance instructions and parts ordering information for the EZH and EZHSO Series pressure-reducing regulators, PRX Series pilots and Type SA/2 pilot supply filter regulator. Information on other equipment used with this regulator is found in separate manuals.

Product Description

EZH Series (Spring-to-Close) and EZHSO Series (Spring-to-Open) regulators are accurate pilot-operated, pressure-balanced, soft-seated regulators. They are designed for use in high pressure natural gas transmission/city gate stations, large capacity distribution systems and power plant feeds. They provide smooth and reliable operation, tight shutoff and long life.

Spring-to-Open version could be used when other overpressure protection options are foreseen, like for example a monitor. In this case, in event of failure, the main regulator will stay completely open, allowing the monitor to take control. The monitor could be Spring-to-Close to ensure a double protection to downstream pipe.

D103077X012

Specifications

Ratings and specifications for the EZH and EZHSO Series are listed in the Specifications section below. Specifications for specific regulator constructions are stamped on a nameplate attached to either the main actuator or the pilot spring case.

Available Configurations

Type EZH (Spring-to-Close): Pilot-operated pressure reducing regulator for low to high outlet pressure

Type EZHSO (Spring-to-Open): Pilot-operated pressure reducing regulator for low to high outlet pressure

Type EZHOSX: Type EZH with a Type OS2 slam-shut device for overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection

Type EZHSO-OSX: Type EZHSO with a Type OS2 slam-shut device for overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection

Body Sizes, End Connection Styles and Pressure Ratings(1)

See Table 1

Maximum Inlet and Outlet (Casing) Pressures(1)

1500 psig / 103 bar

Maximum Emergency (Design Casing Pressure)(1)

1500 psig / 103 bar

Maximum Operating Differential Pressure(1)(4)

Main Valve: 1500 psid / 103 bar d

Pilot: *Between loading pressure in pilot and loading sense pressure:* 1233 psid / 85.0 bar d

Outlet Pressure Ranges

See Table 2

Minimum Differential Pressures(1)(2)

SERIES	MAIN VALVE BODY SIZE		MINIMUM DIFFERENTIAL			
			For 90% Capacity		For 100% Capacity	
	NPS	DN	psid	bar d	psid	bar d
EZH	1	25	15.2	1.1	15.7	1.1
	2	50	12.0	0.83	13.8	0.95
	3	80	10.6	0.73	12.8	0.88
	4	100	15.8	1.1	16.4	1.1
EZHSO	1	25	55	3.8	55	3.8
	2	50				
	3	80				
	4	100				

Pressure Registration

External

Pilot Connections

1/4 NPT

Temperature Capabilities(1)

Nitrile (NBR) Version:
-20 to 180ºF / -29 to 82ºC

Fluorocarbon (FKM) Version:
0 to 180ºF / -18 to 82ºC(3)

Polyurethane (PU) Version:
-22 to 180ºF / -30 to 82ºC

Options

- Pre-piped Pilot Supply
- Travel Indicator
- Whisper Trim™ Cage (NPS 2 to 4 / DN 50 to 100 Sizes only)

1. The pressure/temperature limits in this Instructional Manual and any applicable standard or code limitation should not be exceeded.
2. When using a Type SA/2 pilot supply filter regulator, the differential pressure across the regulator must be a least 45 psid / 3.1 bar d for optimum regulator performance.
3. Types PRX and SA/2 Fluorocarbon (FKM) elastomer is limited to 0°F / -18°C.
4. Maximum Operating Differential Pressure is 1400 psid / 96.5 bar d for NPS 1 / DN 25 EZHSO Series.

Pilot Descriptions

The EZH and EZHSO Series pressure-reducing regulators include a PRX Series pilot mounted on the main valve for pressure reducing or wide-open monitoring applications. PRX Series pressure reducing pilots have the ability to handle a wide range of setpoints from 14.5 to 1160 psig / 1.00 to 80.0 bar.

Type PRX/120: Outlet pressure range of 14.5 to 435 psig / 1.00 to 30.0 bar. The Type PRX/120 can be used as the pilot on single stage pressure reducing regulators or as the monitor pilot or as the working pilot in wide-open monitor systems.

Type PRX/120-AP: Outlet pressure range of 435 to 1160 psig / 30.0 to 80.0 bar. The Type PRX/120-AP can be used as the pilot on single stage pressure reducing regulators or as the monitor pilot or as the working pilot in wide-open monitor systems.

Type PRX/125: Identical to the Type PRX/120 except the restriction screw is removed. The Type PRX/125 can only be used as the monitor override pilot on working monitor applications.

Type PRX/125-AP: Identical to the Type PRX/120-AP except the restriction screw is removed. The Type PRX/125-AP can only be used as the monitor override pilot on working monitor applications.

Table 1. *Main Valve Body Sizes, End Connection Styles and Body Ratings*

MAIN VALVE BODY SIZE		MAIN VALVE BODY MATERIAL	END CONNECTION STYLE	STRUCTURAL DESIGN RATING	
NPS	DN			psig	bar
1	25	WCC Steel	NPT or SWE	1500	103
			CL150 RF	290	20.0
			CL300 RF	750	51.7
			CL600 RF or BWE	1500	103
2	50		NPT or SWE	1500	103
			CL150 RF	290	20.0
			CL300 RF	750	51.7
			CL600 RF or BWE	1500	103
3	80		CL150 RF	290	20.0
			CL300 RF	750	51.7
			CL600 RF or BWE	1500	103
4	100		CL150 RF	290	20.0
			CL300 RF	750	51.7
			CL600 RF or BWE	1500	103

Table 2. *Outlet Pressure Ranges*

TYPE	OUTLET PRESSURE RANGE		AC (ACCURACY CLASS)		PILOT CONTROL SPRING INFORMATION	
	psig	bar	EZH Series	EZHSO Series	Spring Color	Part Number
PRX/120 PRX/125	14.5 to 26 23 to 44 41 to 80 73 to 123	1.00 to 1.8 1.6 to 3.0 2.8 to 5.5 5.0 to 8.5	2.5%	2.5%	Yellow Green Blue Black	M0255240X12 M0255230X12 M0255180X12 M0255220X12
	116 to 210 203 to 334 319 to 435	8.0 to 14.5 14.0 to 23.0 22.0 to 30.0	1%	2.5%	Silver Gold Aluminum	M0255210X12 M0255200X12 M0255860X12
PRX/120-AP PRX/125-AP	435 to 1160	30.0 to 80.0	1%	2.5%	Clear	M0273790X12

Table 3. *Spring-to-Open Overview*

PART NAME	CONDITION	CAUSE	EFFECT	SERIES	REGULATOR REACTION MODE	
Filter	Filter Blocked / Clogged	Debris or aromatics present in the gas	Decrease of supply pressure gives decrease of loading pressure	EZHSO	Open	- - - -
				EZH	- - - -	Close
Pilot disk	Pilot cannot be closed	Debris or aromatics present, Sour gas	Increase loading pressure	EZHSO	Open	- - - -
				EZH	Open	- - - -
Pilot lower diaphragm	Pilot cannot control	Debris or aromatics present, Sour gas	Decrease loading pressure	EZHSO	Open	- - - -
				EZH	- - - -	Close
Pilot upper diaphragm	Pilot cannot feed the regulator	Debris or aromatics present, Sour gas	Decrease loading pressure	EZHSO	Open	- - - -
				EZH	- - - -	Close
Regulator diaphragm	Not proper performance of the Loading Pressure Chamber	Debris or aromatics present, Sour gas	Balancing of Pressures and charge or discharge of the loading pressure chamber	EZHSO	Open	- - - -
				EZH	- - - -	Close
Pilot	Frozen Pilot, Type SA/2 working	Moisture in the gas, high-pressure drop	Type SA/2 loading upper casing of regulator, Pilot not supplying loading pressure to lower casing	EZHSO	- - - -	Close
				EZH	- - - -	Close

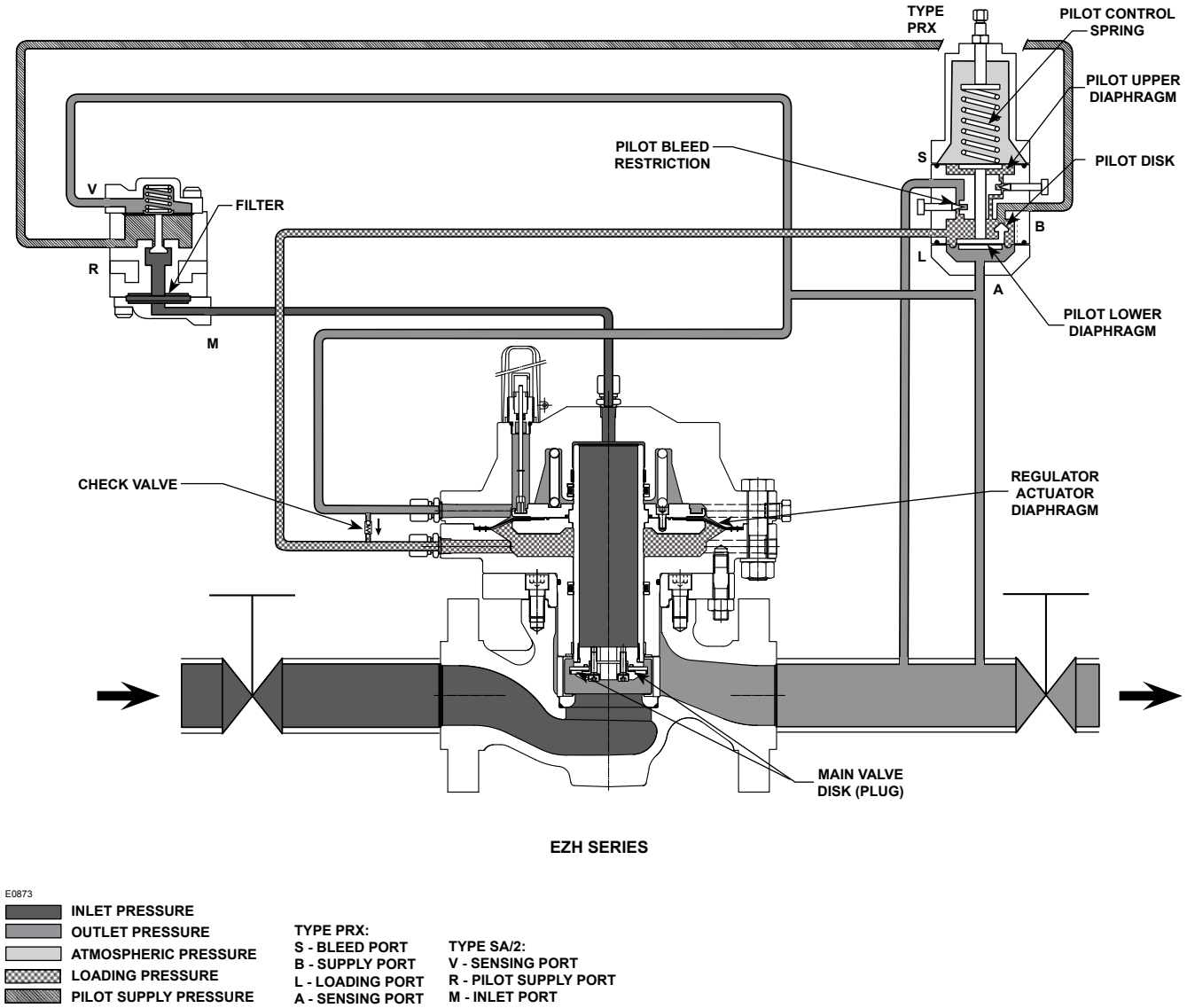


Figure 3. *EZH Series (Spring-to-Close Version) Operational Schematics*

Pilot Supply Filter Regulator

The Type SA/2 pilot supply filter regulator provides a constant supply pressure to the PRX Series pilot that is approximately 45 psi / 3.1 bar over set pressure. The Type SA/2 has an integral 5-micron filter.

Principle of Operation

EZH Series – Spring-to-Close Version

EZH Series Single-Pilot Regulator

CAUTION

The pilot-operated EZH Series (Spring-to-Close version) will fail in close position with a main valve diaphragm failure or lack of pressure supply to the pilot (see Table 3 for Failure Mode Analysis).

EZH Series (Figure 3) uses inlet pressure as the operating medium, which is reduced through pilot operation to load the regulator actuator diaphragm. Outlet or downstream pressure opposes loading pressure in the actuator and also opposes the pilot control spring.

Pilot is supplied with pressure coming from pre-regulator Type SA/2, which reduces inlet pressure to the constant value of outlet pressure plus approximately 45 psi / 3.1 bar.

When outlet pressure drops below the setting of the pilot control spring, pilot control spring force on the pilot diaphragm opens the pilot valve disk, providing additional loading pressure to the regulator actuator diaphragm. This diaphragm loading pressure opens the main valve disk, supplying the required flow to the downstream system. Any excess loading pressure on the actuator diaphragm escapes downstream through the bleed restriction in the pilot.

When the gas demand in the downstream system has been satisfied, the outlet pressure increases. The increased pressure is transmitted through the downstream control line and acts on the pilot diaphragm. This pressure exceeds the pilot spring setting and moves the PRX Series diaphragm, closing the PRX Series orifice and interrupting the loading pressure supply to main valve actuator. The excess of loading pressure acting on both the main diaphragm and PRX Series pilot bleeds to the downstream system through a bleed restriction in the pilot.

A check valve is installed between outlet pressure and loading pressure impulse lines; this valve will protect the diaphragm assembly from possible damage during startup, limiting the differential between outlet and loading pressure.

EZHSO Series – Spring-to-Open Version

EZHSO Series Single-Pilot Regulator

CAUTION

The pilot-operated EZHSO Series (Spring-to-Open version) will fail in open position with a main valve diaphragm failure or lack of pressure supply to the pilot (see Table 3 for Failure Mode Analysis).

EZHSO Series (Figure 4) uses inlet pressure as the operating medium, which is reduced through pilot operation to load the regulator actuator diaphragm (lower chamber). The upper case of EZHSO Series actuator filled with pressure coming from pre-regulator Type SA/2, which reduces inlet pressure to the constant value of outlet pressure plus approximately 45 psi / 3.1 bar. This pressure opposes the main spring force that tends to open the regulator. Outlet or downstream pressure opposes the pilot control spring.

When outlet pressure drops below the setting of the pilot control spring, pilot control spring force on the pilot diaphragm opens the pilot valve disk, providing additional loading pressure to the regulator actuator diaphragm. This diaphragm loading pressure opens the main valve disk, supplying the required flow to the downstream system. Any excess loading pressure on the regulator actuator diaphragm and PRX Series escapes downstream through the bleed restriction in the pilot.

When outlet pressure increases over the setting of the pilot spring, the pilot valve disk will be closed reducing loading pressure to the actuator diaphragm; the pressure in the upper case will force the regulator to close.

A check valve is installed between inlet pressure to upper actuator casing and loading pressure impulse lines; this valve will protect the diaphragm assembly from possible damage during startup, limiting the differential between inlet and loading pressure.

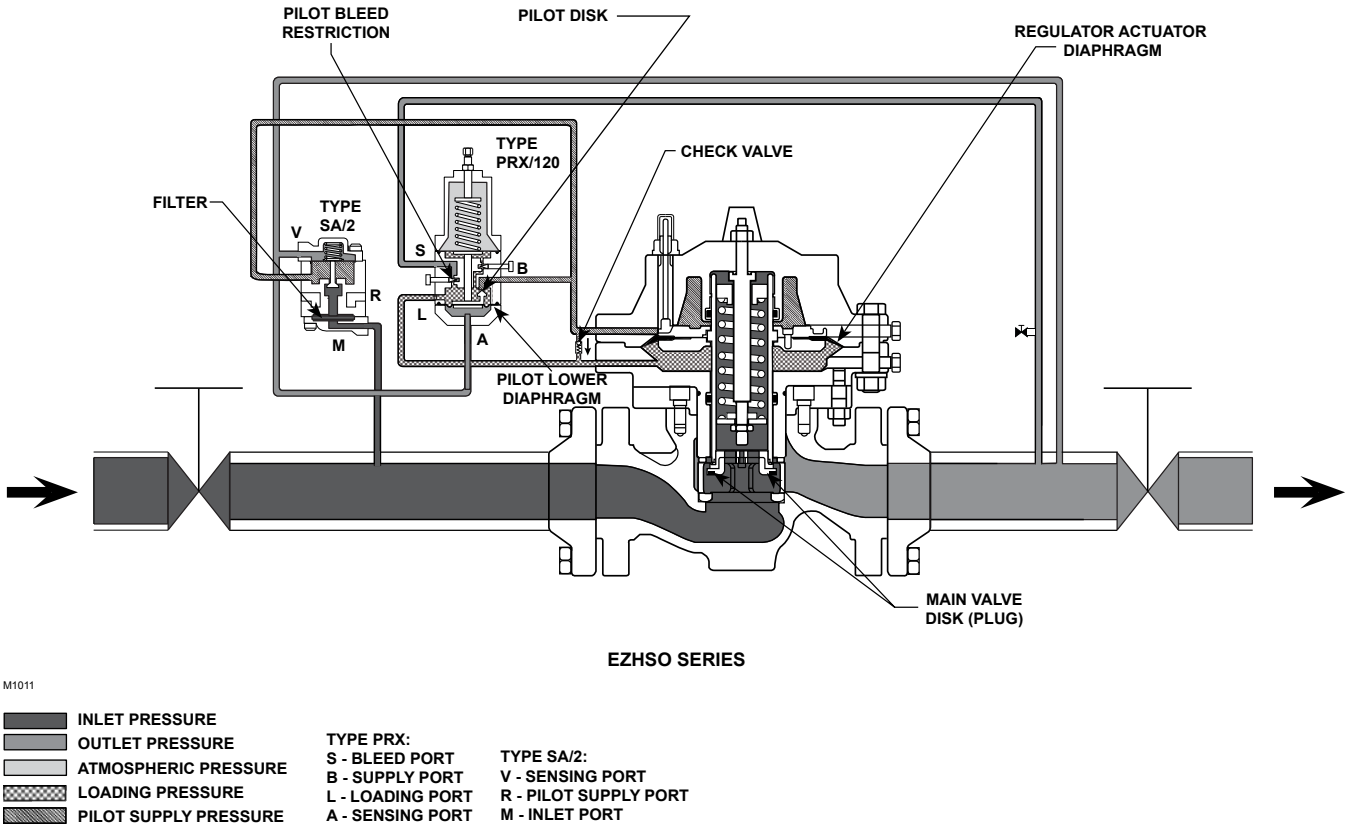


Figure 4. *EZHSO Series (Spring-to-Open Version) Operational Schematics*

EZH and EZHSO Series Adjustment

The adjustment of the regulators (Figures 3 and 4), is performed by means of the pilot adjusting screw, which varies the compression of the control spring. Adjustment is performed while the regulator is in operation with the aid of a pressure gauge to monitor downstream pressure.

Note

The shut-off valve downstream of the regulator must not be completely closed, as it is necessary that a small quantity of gas flows downstream to allow the outlet side to vent, when it is necessary to lower the pressure.

Loosen the PRX Series pilot locknut and turn the adjusting screw slowly clockwise to increase outlet pressure and counterclockwise to decrease outlet pressure. Use a pressure gauge to monitor the outlet pressure until the desired pressure is reached. No adjustment is needed to the Type SA/2 pre-regulator.

Monitoring Systems

Monitoring regulation is overpressure protection by containment; therefore, there is no relief valve to vent to the atmosphere. When the working regulator fails to control the pressure, a monitor regulator installed in series, which has been sensing the downstream and control pressure, goes into operation to maintain the downstream pressure at a slightly higher than normal set pressure. During an overpressure situation, monitoring keeps the customer on line. Also, testing is relatively easy. To perform a periodic test on a monitoring regulator, increase the outlet set pressure of the working regulator and watch the outlet pressure gauge to determine if the monitoring regulator takes over at the appropriate outlet pressure.

Wide-Open Monitoring System (Figure 5)

There are two types of wide-open monitoring systems: upstream and downstream. The difference between upstream and downstream monitoring is that the functions of the regulators are reversed. Systems can be changed from upstream to downstream monitoring and vice-versa, by simply reversing the setpoints

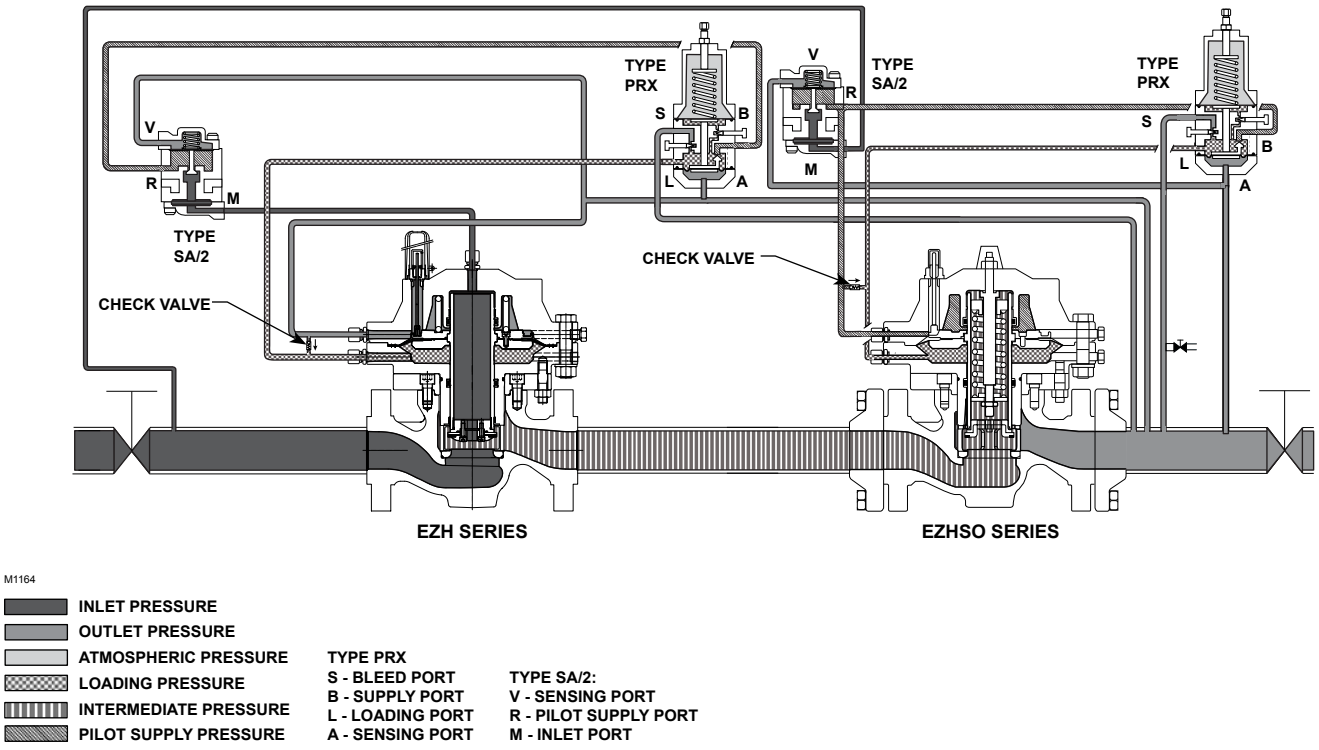


Figure 5. *Wide-Open Monitoring System Operational Schematics*

of the two regulators. The decision to use either an upstream or downstream monitoring system is largely a matter of personal preference or company policy.

In normal operation of a wide open configuration, the working regulator controls the system's outlet pressure. With a higher outlet pressure setting, the monitor regulator senses a pressure lower than its setpoint and tries to increase outlet pressure by going wide open. If the working regulator fails, the monitoring regulator assumes control and holds the outlet pressure at its outlet pressure setting.

Figure 5 shows an upstream wide-open monitor EZH Series (failed-close) and a downstream active regulator EZHSO Series (failed-open). In this installation, if the EZHSO Series regulator no longer controls downstream pressure, it will remain open, letting the EZH Series monitor regulator take control of the downstream pressure. If the EZH Series should fail, the monitor regulator will go closed and protect against overpressure to the downstream system.

Working Monitoring System (Figure 6)

In a working monitoring system, the upstream regulator requires two pilots and it is always the monitoring regulator. The additional pilot permits the monitoring regulator to act as a series regulator to control an intermediate pressure during normal operation. In this way, both units are always operating and can be easily checked for proper operation. See Installation section.

In normal operation, the working regulator controls the outlet pressure of the system. The monitoring regulator's working pilot controls the intermediate pressure and the monitoring pilot senses the system's outlet pressure. If the working regulator fails, the monitoring pilot will sense the increase in outlet pressure and take control.

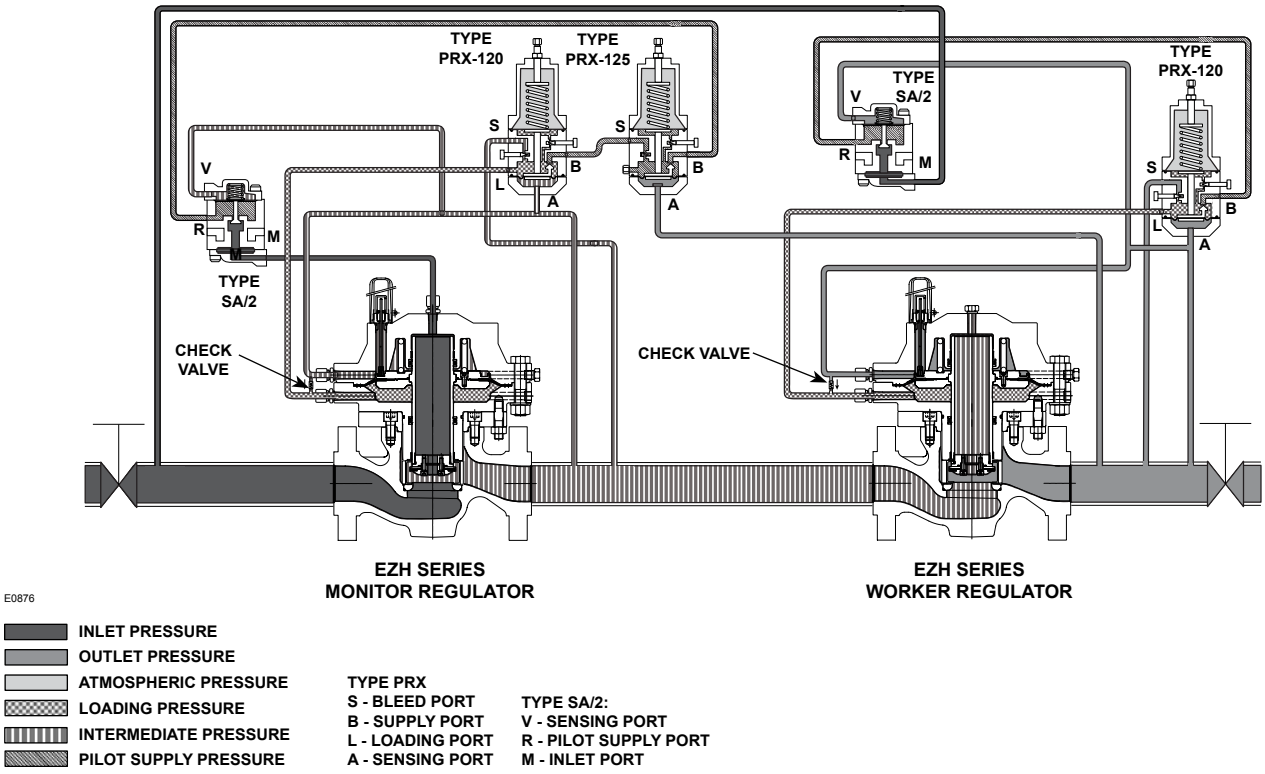


Figure 6. *Working Monitoring System Operational Schematics*

CAUTION

Personal injury or equipment damage, due to bursting of pressure-containing parts may result if this regulator is overpressured or is installed where service conditions could exceed the regulator and pilot pressure ratings.

The working regulator must be rated for the maximum allowable operating pressure of the system because this will be its inlet pressure if the monitoring regulator fails. Also, the outlet pressure rating of the monitoring pilot and any other components that are exposed to the intermediate pressure must be rated for full inlet pressure.

Working monitor installations require an EZH or EZHSO Series main valve with a Type PRX/120 or PRX/120-AP working pilot and a Type PRX/125 or PRX/125-AP monitoring pilot for the upstream regulator and an EZH or EZHSO Series with the appropriate Type PRX/120 or PRX/120-AP pilot for the downstream regulator.

Adjustment

Adjusting the monitor regulator (Figure 6) is the same as adjusting the main regulator. Monitor setpoints are set slightly higher than the main regulator. The monitor pressure setting should be adjusted so it is at minimum two times the pilot accuracy band pressure above the working regulator pressure setting. For the adjustment of the monitor regulator's two pilots, please refer to the section on Startup and Adjustment on page 10.

Installation

WARNING

Personal injury or equipment damage, due to bursting of pressure-containing parts may result if this regulator is overpressured or is installed where service conditions could exceed the limits given in the Specification section and on the appropriate nameplate or where conditions exceed any rating of the adjacent piping or piping connections. To avoid such injury or

damage, provide pressure-relieving or pressure-limiting devices to prevent service conditions from exceeding those limits. Also, be sure the installation is in compliance with all applicable codes and regulations.

Additionally, physical damage to the regulator could break the pilot off the main valve, causing personal injury and property damage due to bursting of pressure-containing parts. To avoid such injury and damage, install the regulator in a safe location.

All Installations

An EZH or EZHSO Series regulator bleeds no gas to atmosphere during normal operation, thus making the regulator suitable for installation in pits and other enclosed locations without elaborate venting systems. This regulator also can be installed in pits subject to flooding by venting the pilot spring case above the expected flood level so that the pilot setting can be referenced to atmospheric pressure.

1. Only personnel qualified through training and experience should install, operate and maintain a regulator. Before installation, make sure that there is no damage to or debris in the regulator. Also, make sure that all tubing and piping are clean and unobstructed.

CAUTION

Eyebolts are installed to aid in the handling and installation of the Regulator Assembly only. Do not attempt to lift more weight than the regulator with these eyebolts.

2. Install the regulator so that the flow arrow on the main valve matches the flow direction of process fluid through the regulator.
3. Apply pipe compound to the external pipeline threads before installing a regulator with threaded NPT end connections. Use gaskets between pipeline and regulator flanges when installing a regulator with flanged end connections. When installing butt weld end connections, remove trim before welding and make sure to use approved welding practices. Use approved piping procedures when installing the regulator.

WARNING

A regulator may vent some gas to the atmosphere. In hazardous or flammable gas service, vented gas may accumulate, causing personal injury, death or property damage due to fire or explosion. Install vent line(s) from the regulator pilot(s) to a remote, safe location away from air intakes or any hazardous location. The end of the vent line or stack opening must be pointed down and protected against condensation or clogging.

4. PRX Series pilots have a 1/4 NPT vent connection in the spring case. The pilot vent opening should be pointed down. Protect the vent opening from condensation or clogging. To remotely vent gas from the spring case, remove the screened vent and connect 1/4 in. / 6.4 mm piping or tubing to the spring case connection. The piping or tubing should vent to a safe location, have as few elbows as possible and have a screened vent that points down on its exhaust. Install the regulator and any remote vent piping or tubing so that the vent is pointed down and protected from condensation, freezing or substances that may clog it.

CAUTION

To avoid freeze-up because of pressure drop and moisture in the gas, use anti-freeze practices, such as heating the supply gas or adding a de-icing agent to the supply gas.

5. The PRX Series pilot connections are 1/4 NPT. Connect a downstream control (sense) line from the “A” port on the bottom of the PRX Series pilot to a straight run of pipe 6 to 10 pipe diameters from the regulator outlet as shown in Figures 3 and 4, using 3/8 in. / 9.5 mm or larger outside diameter tubing. If such a distance is not practical, connect the control line away from elbows, swages, nipples or any area where abnormal flow velocities occur.
6. The PRX Series pilot connections are 1/4 NPT. Connect a downstream bleed line from the “S” port on the PRX Series pilot with a straight run of pipe 6 to 10 pipe diameters to the regulator outlet as shown in Figures 3 and 4, using 3/8 in. / 9.5 mm or larger outside diameter tubing.

Note

Separate sensing lines must be used for the “S” and the “A” ports.

CAUTION

To prevent damage to the pilot during Startup, the sense and bleed lines should be located on the same side of the downstream block valve.

7. Install hand valves in the downstream sense and bleed lines if desired. If hand valves are installed, they should be full flow valves, such as a full port ball valve. For EZHSO Series installation, a vent valve downstream of the regulator is needed. It should be installed directly in the PRX Series pilot bleed line connection (line from Port S to pipe). A full bore NPS 1/4 ball valve for the vent line is preferred to provide sufficient flow.
8. For optional remote pneumatic loading of a PRX Series pilot, make the spring case piping connections just as they would be made for remote venting in step 4.

Wide-Open Monitor Regulator

1. Follow the procedures in the All Installations section and then continue with step 2 of this section. The sense and bleed control lines of both the upstream and downstream pilots will be connected to the downstream piping (see Figure 5).
2. Connect the pilot supply line for the downstream regulator to the outlet “R” port of the Type SA/2 pilot supply filter regulator.

Working Monitor Regulator

1. Follow the procedure in the All Installations section and then continue with step 2 of this section. The sense line of the upstream monitor pilot (from Port A on the Type PRX/125) and the bleed (Port S) and sense lines (Port A) of the downstream pilot will be connected to the downstream piping (see Figure 6).
2. Connect an inlet supply line from the upstream piping to the inlet “M” port of the downstream Type SA/2 pilot supply filter regulator.
3. Connect a control (sense) line from the “A” port of the upstream working Type PRX/120 pilot to the intermediate pressure portion of piping, using 3/8 in. / 9.5 mm or larger outside diameter tubing.
4. Connect a downstream bleed line from the “S” port of the upstream working Type PRX/120 pilot to the intermediate pressure portion of piping, using 3/8 in. / 9.5 mm or larger outside diameter tubing.

Startup and Adjustment

Pre-startup Considerations

Each regulator is factory-set for the outlet pressure specified on the order. If no setting was specified, outlet pressure was factory-set at the mid-range of the pilot control spring. Before beginning the start-up procedure in this section, make sure the following conditions are in effect:

- Block valves isolate the regulator
- Vent valves are closed
- A bypass, if any, is in operation

In all cases, check the pilot control spring setting to make sure it is correct for the application.

CAUTION

Be sure to slowly introduce pressure into the system to prevent downstream overpressure due to potential rapid pressure increase. Pressure gauges should always be used to monitor downstream pressure during Startup. Procedures used in putting this regulator into operation must be planned accordingly if the downstream system is pressurized by another regulator or by a manual bypass.

Note

When using a Type SA/2 pilot supply filter regulator, the differential pressure across the main regulator must be at least 45 psid / 3.1 bar d for optimum regulator performance. The Type SA/2 can be removed if differential pressure across the main regulator is less than 45 psid / 3.1 bar d and inlet pressure stays at or below 200 psig / 13.8 bar.

Pilot Adjustment

For PRX Series pilots (Figure 13), loosen locknut (key 2) and turn the adjusting screw into the spring case to increase (or out of the spring case to decrease) the downstream pressure. When the required downstream pressure is maintained for several minutes, tighten the locknut to lock the adjusting screw in position.

PRX Series Pilot Restrictor and Damper Screw Adjustment

Note

Recommended initial setting of the restrictor screw is turned completely in (clockwise) and then turned out 1 turn. The damper screw initial setting is turned completely out (counterclockwise).

The Type PRX/125 (upstream monitor pilot in working monitor installations) does not have a restrictor screw.

The Damper and Restrictor screws on the PRX Series pilot control the regulator's proportional band (droop) and speed of response. For additional tuning follow the steps outlined below, refer to Figure 13.

1. Start with the restrictor screw (R) 1 turn counterclockwise from fully seated (turn restrictor fully clockwise then 1 turn counterclockwise) and the damper screw (D) fully counterclockwise.
2. Turn damper screw clockwise until desired performance is achieved. This reduces the flow path of the damper. If the damper becomes fully seated (no longer able to turn clockwise) and the desired performance has not been achieved, return the damper screw to the fully counterclockwise position.

WARNING

The damper screw should not be left in the fully seated position, as it will lock the regulator in last position which could cause incorrect pressure regulation.

3. Turn the restrictor screw an additional turn counterclockwise from fully seated. This increases the flow path of the restrictor. If additional tuning is required, repeat step 2. Follow this method until desired performance is achieved.

Startup

For EZH Series

1. Make sure all block valves, vent valves and control line valve(s) are closed.
2. Back out the pilot adjusting screw(s).
3. **Slowly open** the valves in the following order:
   a. Inlet block valves
   b. Pilot supply and control live valve(s), if used
4. Crack open the outlet block valve or bypass valve to allow minimum flow.

For a single regulator (Figure 3), set the pilot to the desired outlet (control) pressure according to the Pilot Adjustment procedure.

For a wide-open downstream monitor installation (Figure 5), adjust the upstream working pilot until intermediate pressure is higher than the desired setpoint of the monitor pilot. Adjust the downstream monitoring pilot to the desired monitoring takeover pressure. Reduce the upstream pilot to the normal outlet pressure setting.

For a wide-open upstream monitor installation (Figure 5), adjust the downstream working pilot to a setpoint higher than the setpoint of the monitor pilot. Adjust the upstream monitoring pilot to the desired monitoring takeover pressure. Reduce the downstream pilot to the normal outlet pressure setting.

For a working monitor installation (Figure 6), adjust the setpoint of the upstream monitor pilot Type PRX/125 to the desired maximum pressure. Adjust the upstream working pilot Type PRX/120 to the desired intermediate pressure setting. Adjust the downstream pilot to a pressure setting slightly above the upstream monitor pilot pressure setting. Adjust the upstream monitor pilot Type PRX/125 to its desired setpoint. Establish final desired downstream pressure by adjusting the downstream working regulator pilot.

5. After adjusting the PRX Series pilot(s) to the desired pressure setting(s), slowly open the downstream block valve wide open.
6. Close the bypass valve, if used.

For EZHSO Series

1. Make sure all block valves, vent valves and control line valve(s) are closed.
2. Back out the pilot adjusting screw(s).
3. Introduce upstream pressure by slowly opening inlet valve.

Table 4. *Torque Specifications*

PART NAME	TORQUE SPECIFICATIONS							
	Body Size							
	NPS 1 / DN 25		NPS 2 / DN 50		NPS 3 / DN 80		NPS 4 / DN 100	
	ft-lbs	N•m	ft-lbs	N•m	ft-lbs	N•m	ft-lbs	N•m
Indicator Fitting or Plug (key 141)	10 to 30	14 to 41	10 to 30	14 to 41	10 to 30	14 to 41	10 to 30	14 to 41
Stud Nuts (key 26)	45 to 50	61 to 68	45 to 50	61 to 68	80 to 95	108 to 129	- - - -	
Socket Head Cap Screws (key 16)	50 to 70(1)	5.6 to 7.9(1)	50 to 70(1)	6 to 7.9(1)	50 to 70(1)	6.2 to 7.9(1)	100 to 115(1)	11 to 13(1)
Stud Bolts (key 24)	50 to 70	68 to 95	50 to 70	68 to 75	100 to 120	136 to 163	- - - -	
Cap Screws (key 21)	50 to 55	68 to 75	130 to 150	176 to 203	250 to 270	339 to 366	280 to 310	380 to 420
Cap Screws (key 6)	50 to 60	68 to 81	50 to 60	68 to 81	70 to 95	95 to 129	140 to 155	190 to 210
Socket Head Cap Screws (key 33)	30 to 40(1)	3.4 to 4.5(1)	50 to 60(1)	5.6 to 6.8(1)	80 to 100(1)	9 to 11(1)	80 to 100(1)	9 to 11(1)
Smart Screws (key 68)	- - - -		- - - -		- - - -		31 to 40(1)	3.5 to 4.5(1)
Socket Head Cap Screws (key 74)	- - - -		- - - -		- - - -		26 to 35(1)	2.9 to 4(1)
Cap Screws (key 77)	- - - -		- - - -		- - - -		90 to 110	122 to 149
Sleeve Guide (key 61)	- - - -		- - - -		- - - -		130 to 140	176 to 190
Cap Screw (key 154)	16(1)	1.8(1)	50(1)	5.6(1)	10	14	2.9 to 3.5	3.9 to 4.7
Stem Nut (key 151)	32	43	32	43	45	61	45 to 50	61 to 68
Stem Nut (key 155)	30	41	- - - -		- - - -		- - - -	
Hex Nut (key 152)	- - - -		40	54	60	81	45 to 50	61 to 68

1. Torque specifications are given in in-lbs.

4. Vent pressure from bleed line until regulator closes and then shut-off vent. A full bore NPS 1/4 ball valve for the vent line is preferred.
5. Slowly open downstream valve, making sure that there is a constant sufficient pressure drop across the regulator. If downstream pressure climbs too close to upstream pressure (a minimum DP of 55 psi / 3.8 bar must be guaranteed), the regulator will again fully open. In this case, start-up procedure needs to be repeated.

For a single regulator (Figure 4), set the pilot to the desired outlet (control) pressure according to the Pilot Adjustment procedure.

For a wide-open downstream monitor installation (Figure 5), adjust the upstream working pilot until intermediate pressure is higher than the desired setpoint of the monitor pilot. Adjust the downstream monitoring pilot to the desired monitoring takeover pressure. Reduce the upstream pilot to the normal outlet pressure setting.

For a wide-open upstream monitor installation (Figure 5), adjust the downstream working pilot to a setpoint higher than the setpoint of the monitor pilot. Adjust the upstream monitoring pilot to the desired monitoring takeover pressure. Reduce the downstream pilot to the normal outlet pressure setting.

For a working monitor installation (Figure 6), adjust the setpoint of the upstream monitor pilot Type PRX/125 to the desired maximum pressure. Adjust the upstream working pilot Type PRX/120 to the desired intermediate pressure setting. Adjust the downstream pilot to a pressure setting slightly above the upstream monitor pilot pressure setting. Adjust the upstream monitor pilot to its desired setpoint. Establish final desired downstream pressure by adjusting the downstream working regulator pilot.

6. After adjusting the PRX Series pilot(s) to the desired pressure setting(s), slowly open the downstream block valve wide open.
7. Close the bypass valve, if used.

Shutdown

CAUTION

If the pilot bleed control line pressure is shutdown first, the downstream system may be subjected to full inlet pressure.

1. If the pilot setting must be changed, be sure to keep some tension on the spring. This will prevent trapping inlet pressure during blow down.
2. Slowly close the valves in the following order:
   a. Inlet block valve
   b. Outlet block valve
   c. Control line valve(s), if used.
3. Open the vent valves to depressurize the system.

Maintenance

WARNING

For both EZH and EZHSO Series, never remove or disconnect the check valve installed between the two casings.

The regulator parts are subject to normal wear and must be inspected periodically and replaced as necessary. The frequency of inspection and replacement depends on the severity of service conditions and on applicable federal, state and local codes and regulations.

WARNING

To avoid personal injury or property damage from sudden release of pressure, isolate the regulator from the pressure system and release all pressure from the pilot and main valve before performing maintenance operations.

CAUTION

Use proper lifting techniques, when lifting the upper and lower actuator casings (keys 11 and 5) off the EZH or EZHSO Series body (key 1). The actuator assembly weighs more than 100 lbs / 45 kg.

CAUTION

Customer cannot use another type of eyebolt in the regulator. Only Emerson™ parts can be used to repair the unit.

CAUTION

Eyebolts are installed to aid in the handling and installation of the Regulator Assembly only. Do not attempt to lift more weight than the regulator with these eyebolts.

Polyurethane (PU) Disk Conversion

A new Polyurethane (PU) disk is being phased in during 2014. The new material offers improved durability in abrasive environments. To convert EZH and EZHSO Series units currently in service, the user will need to order three parts; retainer (key 31), disk assembly (key 30) and seat ring (key 2). Please contact your local Sales Office with any questions about parts selection.

Main Valve and Actuator Maintenance

NPS 1 through 3 / DN 25 through 80
Disk Maintenance (Refer to Figures 8 and 9)

For EZH Series:

1. Remove nuts (key 26).
2. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) off the body (key 1).
3. Remove the hex socket cap screws (key 33) and lock washers (key 32). Lift off the disk holder assembly (key 30) and disk retainer (key 31).
4. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).
5. Remove the cage (key 3), seat ring (key 2) and O-ring (key 34). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the body (key 1).
6. Set the seat ring (key 2) back in the body (key 1) with the curved side down and the seat edge up. Place the cage (key 3) on top of seat ring. The cage will engage the step on the seat ring.
7. Place the disk holder assembly (key 30) and disk retainer (key 31) on the sleeve adaptor (key 27).
8. Insert the lock washers (key 32) and hex socket cap screws (key 33) and tighten. See Torque Specifications (Table 4) for proper torque values.

9. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) and place on the body (key 1). Secure with stud bolts and nuts (keys 24 and 26). See Torque Specifications (Table 4) for proper torque values.

For EZHSO Series:

1. Remove nuts (key 26).
2. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) off the body (key 1).
3. Remove the hex socket cap screw (key 154). Lift off the disk holder assembly (key 30). Do not attempt to remove the sleeve adaptor (key 27).
4. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).
5. Remove the cage (key 3), seat ring (key 2) and O-ring (key 34). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the body (key 1).
6. Set the seat ring (key 2) back in the body (key 1) with the curved side down and the seat edge up. Place the cage (key 3) on top of seat ring. The cage will engage the step on the seat ring.
7. Place the disk holder assembly (key 30) on the sleeve adaptor (key 27).
8. Insert the hex socket cap screw (key 154) and tighten. See Torque Specifications (Table 4) for proper torque values.
9. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) and place on the body (key 1). Secure with stud bolts and nuts (keys 24 and 26). See Torque Specifications (Table 4) for proper torque values.

NPS 4 / DN 100 Disk Maintenance (EZH Series Only) (Refer to Figure 8)

1. Remove cap screws (key 77).
2. Carefully lift the cap (key 70) off of the upper actuator casing (key 11) and unscrew the eyebolts (key 35) from the cap (key 70).
3. Remove O-ring (key 75). Inspect the O-ring for damage or wear and replace if necessary.
4. Remove the O-ring (key 69). Inspect the O-ring for damage or wear and replace if necessary. Lubricate O-ring before placing inside the cap (key 70).
5. Remove special screws (key 68) from sleeve (key 14).
6. Fit eyebolt (key 35) into the upper spring seat (key 73) threaded hole.
7. Carefully remove the trim system from the sleeve guide (key 61) using the eyebolts (key 35).
8. Remove socket head cap screws (key 33) and lock washers (key 32).
9. Lift off the disk retainer (key 31) and disk holder assembly (key 30).
10. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).
11. Place disk holder assembly (key 30) onto disk retainer (key 31).
12. Place disk retainer (key 31) with the disk holder assembly (key 30) into sleeve adaptor (key 27) and align screw holes.
13. Place lock washer (key 32) onto the screws (key 33).
14. Screw together the disk retainer assembly into the sleeve adaptor (key 27). See Torque Specifications (Table 4) table for proper torque values.
15. Lubricate the sleeve (key 14).
16. Carefully insert the trim system into the sleeve guide (key 61) utilizing eyebolt (key 35). Align sleeve utilizing the socket hex cap screw (key 74) as a guide.
17. Screw special screws (key 68) to affix the sleeve system. See Torque Specifications (Table 4) for proper torque values. Place O-ring (key 69) on cap.
18. Remove eyebolt (key 35) from upper spring seat (key 73) threaded hole.
19. Carefully place the cap on the upper actuator casing (key 11).
20. Lubricate cap screws (key 77) and attach cap (key 70) to the upper casing using cap screws (key 77). See Torque Specifications (Table 4) for proper torque values.

Note

Rotate the cap such that the outer holes for sensing lines are in line with upper casing holes for sensing lines: to validate the alignment and before

attaching cap, check that travel indicator is aligned on the cap and on the upper actuator casing.

21. Mount O-ring (key 75) on the space between the cap (key 70) and the upper actuator casing (key 11).
22. Screw the eyebolts (key 35) on the cap (key 70).

NPS 4 / DN 100 Disk Maintenance (EZHSO Series Only) (Refer to Figure 9)

1. Remove cap screws (key 77).
2. Carefully lift the cap (key 70) off of the upper actuator casing (key 11).
3. Remove O-ring (key 75). Inspect the O-ring for damage or wear and replace if necessary.
4. Remove O-ring (key 69). Inspect the O-ring for damage or wear and replace if necessary. Lubricate O-ring before placing inside the cap (key 70).
5. Remove special screws (key 68) from sleeve.
6. Carefully remove the trim system from the sleeve guide (key 61) utilizing the eyebolt (key 35) or stem nut.
7. Remove socket head cap screws (key 154).
8. Lift off the disk holder assembly (key 30).
9. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).
10. Place disk holder assembly (key 30) into sleeve adaptor (key 27) and align screw holes.
11. Place on socket head cap screw (key 154). Screw together the disk holder assembly (key 30) into the sleeve adaptor (key 27). See Torque Specifications (Table 4) for proper torque values.
12. Lubricate the sleeve (key 14).
13. Carefully insert the trim system into the sleeve guide (key 61). Align sleeve utilizing the socket hex cap screw (key 74) as a guide.
14. Screw special screws (key 68) to affix the sleeve system. See Torque Specifications (Table 4) for proper torque values.
15. Place O-ring (key 69) on the cap (key 70).
16. Carefully place the cap (key 70) on the upper actuator casing (key 11).
17. Lubricate the cap screws (key 77) before screwing in to hold the cap (key 70) and the upper actuator casing (key 11) together. See Torque Specifications (Table 4) for proper torque values.

Note

Rotate the cap such that the outer holes for sensing lines are in line with upper casing holes for sensing lines: to validate the alignment and before attaching cap, check that travel indicator is aligned on the cap and on the upper casing.

18. Mount O-ring (key 75) on the cap.

NPS 1 through 3 / DN 25 through 80 Intermediate Flange O-ring Maintenance for EZH and EZHSO Series

1. Remove nuts (key 26).
2. Carefully lift the upper actuator casing and lower actuator casing assemblies (keys 11 and 5) off the body (key 1).
3. Remove cap screws (key 6).
4. Lift off intermediate flange (key 25).
5. Remove O-ring (key 7). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the body (key 1).
6. Place the intermediate flange (key 25) on the body, make sure to position the stud bolt (key 24) holes on the outsides of the body (key 1). Secure with cap screws (key 6). See Torque Specifications (Table 4) for proper torque values.
7. Carefully lift the upper actuator casing and lower actuator casing assemblies (keys 11 and 5) and position it in the body (key 1).
8. Screw in stud bolts and nuts (keys 24 and 26). See Torque Specifications (Table 4) for proper torque values.

NPS 1 through 3 / DN 25 through 80 Actuator Assembly Maintenance (Refer to Figures 8 and 9)

For EZH Series:

1. Make a mark on the upper actuator casing (key 11), lower actuator casing (key 5), intermediate flange (key 25) and body (key 1) to indicate proper alignment.
2. Remove travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192), if present, by loosening the

travel indicator fitting (key 141) and lifting out the travel indicator assembly. See the Travel Indicator Maintenance section for the proper maintenance procedure.

3. Loosen out the hex nuts (key 23) and remove the washers (key 22) and the cap screws (key 21). Remove all the short bolts first, then evenly remove the two long bolts (key 39), indicated with (LB) on the head and brackets (key 35). Make sure to balance the upper actuator casing while removing the spring tension. Carefully lift the upper actuator casing (key 11) off the lower actuator casing (key 5). Remove spring (key 13).
4. Remove the socket head cap screws (key 16). Lift off the diaphragm (key 20) and the inlet plate (key 18). Remove O-rings (keys 15 and 17). Inspect the diaphragm and O-rings for damage or wear and replace if necessary.
5. Inspect the upper actuator casing (key 11), O-ring (key 9), anti-friction split rings (key 8) and anti friction ring (key 4) for damage or wear. If damaged, remove the O-ring and split rings and replace with new parts. Lightly lubricate the O-ring and split rings. Place the split rings in the body first, then slide the O-ring between the split rings. Lubricate and reinstall the anti-friction ring (key 4).
6. Remove hex nuts (key 26) from the stud bolts (key 24). Lift off the lower actuator casing (key 5). Remove the hex socket cap screws (key 33) and spring lock washers (key 32). Lift off the disk holder assembly (key 30) and disk retainer (key 31).
7. Slide the sleeve (key 14) out of the lower actuator casing (key 5) and slide the outlet plate (key 19) off of the sleeve. Check the sleeve for scratches, burrs or other damage and replace if necessary.
8. Inspect the lower actuator casing (key 5), O-rings (keys 9 and 62), anti-friction split rings (key 8) and anti-friction ring (key 4) for damage or wear. If damaged, remove the O-ring and split rings and replace with new parts. Lightly lubricate the O-ring (key 9) and split rings. Place the split rings in the body first, then slide the O-ring (key 9) between the split rings. Lubricate and mount O-ring (key 62) outside of the lower actuator casing (key 5).
9. Slide the outlet plate (key 19) onto the sleeve (key 14) and slide the sleeve into the lower actuator casing (key 5). Place the disk holder (key 30) and disk retainer (key 31) on the sleeve adaptor (key 27). Insert the spring lock washers (key 32) and hex socket cap screws (key 33) and tighten. See Torque Specifications (Table 4) for proper torque values.
10. Lightly lubricate the O-rings (keys 15 and 17) and the inner and outer diaphragm (key 20) edges. Place the inlet plate (key 18) and the diaphragm (key 20) on the sleeve (key 14). Make sure O-rings (keys 15 and 17) are correctly positioned. Insert and tighten the hex socket cap screws (key 16). See Torque Specifications (Table 4) for proper torque values.

Note

When tightening fasteners arranged in a circular pattern, alternate the tightening of each fastener with the fastener directly across from it using a "star" criss-cross pattern for five times, until proper specified torque is achieved. Each time around, when all screws are tightened to the required torque, the diaphragm will compress a little until the plates are in direct, metal-to-metal, contact. It will take at least five times around before this happens. Only then will the applied torque on each screw remain at the required value.

11. Carefully lift the lower actuator casing assembly (key 5) and place on the body (key 1). **Make sure to match up the alignment marks.** Secure with stud bolts and nuts (keys 24 and 26). See Torque Specifications (Table 4) for proper torque values.
12. Lightly lubricate the spring (key 13) and place on the inlet plate (key 18).
13. Carefully place the upper actuator casing (key 11) on the lower actuator casing (key 5). **Make sure to match up the alignment marks.** Insert the two long bolts (key 39) 180° apart and away from flanges. Place the washers (key 22), hex nuts (key 23) and brackets (key 35) on the long bolts and evenly tighten. Using proper bolting techniques, install remaining short bolts (key 21), washers and hex nuts. See Torque Specifications (Table 4) for proper torque values.
14. Place travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192) in the upper actuator casing (key 11), if present and tighten the travel indicator fitting (key 141).

For EZHSO Series:

1. Make a mark on the upper actuator casing (key 11), lower actuator casing (key 5), intermediate flange (key 25) and body (key 1) to indicate proper alignment.

2. Remove travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192), if present, by loosening the travel indicator fitting (key 141) and lifting out the travel indicator assembly. Please see Travel Indicator Maintenance section for proper maintenance procedure.
3. Remove protective cap (key 146). Loosen and remove hex nuts (key 151).
4. Remove cap screws (key 21), washers (key 22) and hex nuts (key 23). Carefully lift the upper actuator casing (key 11) off the lower actuator casing (key 5).
5. Remove the socket head cap screws (key 16). Lift off the diaphragm (key 20) and the inlet plate (key 18). Remove O-rings (keys 15 and 17). Inspect the diaphragm and O-rings for damage or wear and replace if necessary.
6. Inspect the upper actuator casing (key 11), O-ring (key 9), anti-friction split rings (key 8) and anti-friction ring (key 4) for damage or wear. If damaged, remove the O-ring and split rings and replace with new parts. Lightly lubricate the O-ring and split rings. Place the split rings in the body first, then slide the O-ring between the split rings. Lubricate and reinstall the anti-friction ring (key 4).
7. Remove hex nuts (key 26) from the stud bolts (key 24). Lift off the lower actuator casing (key 5). Remove the hex socket cap screw (key 154). Lift off the disk holder assembly (key 30).
8. Slide the sleeve (key 14) out of the lower actuator casing (key 5) and slide the outlet plate (key 19) off of the sleeve. Check the sleeve for scratches, burrs or other damage and replace if necessary.
9. Inspect the lower actuator casing (key 5), O-rings (keys 9 and 62), anti-friction split rings (key 8) and anti-friction ring (key 4) for damage or wear. If damaged, remove the O-ring and split rings and replace with new parts. Lightly lubricate the O-ring (key 9) and split rings. Place the split rings in the body first, then slide the O-ring (key 9) between the split rings. Lubricate and mount O-ring (key 62) outside of the lower actuator casing (key 5).
10. Slide the outlet plate (key 19) onto the sleeve (key 14) and slide the sleeve into the lower actuator casing (key 5). Place the disk holder assembly (key 30) on the sleeve adaptor (key 27). Insert the hex socket cap screw (key 154) and tighten. See Torque Specifications (Table 4) for proper torque values.
11. Lightly lubricate the O-rings (keys 15 and 17) and the inner and outer diaphragm (key 20) edges. Place the inlet plate (key 18) and the diaphragm (key 20) on the sleeve (key 14). Make sure O-rings (keys 15 and 17) are correctly positioned. Insert and tighten the hex socket cap screws (key 16). See Torque Specifications table for proper torque.
12. Carefully lift the lower actuator casing assembly (key 5) and place on the body (key 1). **Make sure to match up the alignment marks.** Secure with stud bolts and nuts (keys 24 and 26). See Torque Specifications (Table 4) for proper torque values.
13. Carefully place the upper actuator casing (key 11) on the lower actuator casing (key 5). **Make sure to match up the alignment marks.** Insert the two long bolts (key 39) 180° apart and away from flanges. Place the washers (key 22), hex nuts (key 23) and brackets (key 35) on the long bolts and evenly tighten. Using proper bolting techniques, install remaining short cap screws (key 21), washers and hex nuts. See Torque Specifications (Table 4) for proper torque values.
14. Tighten hex nuts (key 151) and install protective cap (key 146).
15. Place travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192) in the upper actuator casing (key 11), if present and tighten the travel indicator fitting (key 141).

NPS 4 / DN 100 Actuator Assembly Maintenance (EZH Series Only) (Refer to Figure 8)

1. If present, remove the travel indicator assembly by unscrewing the travel indicator fitting (key 141), then pull out the stem (key 139). Please see the Travel Indicator Maintenance section for the proper maintenance procedure.
2. Remove hex head cap screws (key 21), washers (key 22) and hex nuts (key 23). Carefully lift the upper actuator casing (key 11) off the lower actuator casing (key 5). Inspect the upper actuator casing (key 11), O-rings (key 9) and anti-friction rings (key 8) for damage or wear. If damaged, remove and replace with new parts. Place the anti-friction rings in the body first, then slide the O-ring between the anti-friction rings.
3. Unscrew 8 special screws (key 68). Unscrew eyebolts (key 35) from the cap and unscrew 8 screws (key 77) to remove cap (key 70) from the upper actuator casing (key 5). Attach eyebolts

to the upper spring seat (key 73) and lift up and remove the sleeve assembly (key 14). Lift off the diaphragm/plates system. Remove O-ring (key 15) and replace it as needed. Inspect diaphragm for damage or wear; remove screws (key 16), lift off inlet plate (key 18) to replace diaphragm (key 20) and O-ring (key 17).

4. Align screw holes on the cap (key 70) to the sleeve guide screw (key 66). Remove sleeve guide (key 61) utilizing cap (key 70) to unscrew. Inspect O-rings (keys 9 and 64) for damage or wear, replace anti-friction ring (key 8) and O-ring (key 9) if necessary. Unscrew 8 cap screws (key 6) and remove crush washers (key 67). Lift off lower casing (key 5). Inspect O-ring (keys 7 and 63) for damage or wear. Replace if necessary.
5. Remove cage (key 78).
6. Remove seat ring (key 2). Inspect seat ring for damage or wear. If damaged, replace with new parts.
7. Remove O-ring (key 34) from body. Inspect for damage or wear. If damaged, replace with new parts.
8. Lubricate O-ring (key 34) and replace into the body.
9. Place seat ring (key 2) on top of O-ring (key 34) in body with the curved side down and seat edge up.
10. Place cage (key 78) on the top of seat ring (key 2).
11. Place lower casing (key 5) on top of the body. Replace washer (key 67) and tighten cap screws (key 6). Screw sleeve guide (key 61) into lower casing (key 5) utilizing cap (key 70).
12. Lubricate the sleeve (key 14) in the upper plate contact area and assemble the diaphragm/plates system on the sleeve system. Tighten screws (key 16) using a “star” criss-cross pattern for five times until proper specified torque is achieved.
13. Screw the special screws (key 68) – already on the sleeve – to fix the diaphragm/plates system on the sleeve system. See Torque Specifications (Table 4) for proper torque values. Tighten screws (key 68) using a “star” criss-cross pattern for five times until proper specified torque is achieved.
14. Lubricate lower casing (key 5) on the diaphragm contact area.
15. Carefully insert the trim system into the sleeve guide (key 61) utilizing the eye-bolts (key 35) that fits in the upper spring seat (key 73) threaded hole.
16. Lubricate the diaphragm (key 20) on the upper casing contact area.
17. Lubricate and mount the O-ring (key 69) on the cap (key 70). Lubricate and mount O-rings (key 9) and anti-friction rings (key 8) inside the cap. Unscrew the eyebolts (key 35) from the upper spring seat (key 73) and carefully place the cap on the upper actuator casing (key 11). Align the travel indicator hole on the cap to the upper actuator casing travel indicator hole. Lubricate cap screws (key 77) and attach cap (key 70) to the upper casing (key 5) using cap screws (key 77). Bag diaphragm flat to lower actuator casing diaphragm flange contact area. Carefully place the upper actuator casing on the top of the lower actuator casing/trim system using a stud to guide.

Note

Rotate the upper casing such that the outer holes for sensing lines are perpendicular to gas flow and outer holes of lower casing.

18. Lubricate threads on bolts (key 21).
19. Bolt together the upper and lower actuator casings (keys 11 and 5) using cap screws (key 21), washers (key 22) and hex nuts (key 23). See Torque Specifications (Table 4) for proper torque values. Tighten cap screws using a “star” criss-cross pattern for five times until proper specified torque is achieved.
20. Mount O-ring (key 75) on the cap (key 70).
21. Screw the eyebolts (key 35) on the cap (key 70).
22. If present, set the stem (key 139) through the casing hole and tap it into the groove in the diaphragm plate (key 18). Slide the travel indicator fitting (key 141) over the stem and tighten to the cap (key 70).

NPS 4 / DN 100 Actuator Assembly Maintenance (EZHSO Series Only) (Refer to Figure 9)

1. Remove closing cap (key 146), unscrew 2 nuts (key 151). If present, remove travel indicator assembly by unscrewing the travel indicator fitting (key 141), then pull out the stem (key 139). Please see the Travel Indicator Maintenance section for the proper maintenance procedure.
2. Remove hex head cap screws (key 21), washers (key 22) and hex nuts (key 23). Carefully lift

the upper actuator casing (key 11) off the lower actuator casing (key 5). Inspect the upper actuator casing (key 11), O-rings (key 158) and anti-friction rings (key 157) for damage or wear. If damaged, remove and replace with new parts. Place the anti-friction rings in the cap first, then slide the O-ring between the anti-friction rings.

3. Unscrew 8 special screws (key 68). Lift up and remove the sleeve assembly (key 14). Lift off the diaphragm/plates system. Remove O-ring (key 15) and replace as needed. Inspect diaphragm (key 20) for damage or wear, remove screws (key 16), lift off inlet plate (key 18) to replace diaphragm and O-ring (key 17).
4. Unscrew 8 screws (key 77) to remove cap (key 70) from the upper casing (key 5). Align screw holes on the cap (key 70) to the sleeve guide screws (key 66). Remove sleeve guide (key 61) utilizing cap (key 70) to unscrew. Inspect O-rings (key 9), (key 64) and (key 153) for damage or wear, replace anti-friction rings (key 8) and O-ring (key 9) if necessary. Unscrew 8 cap screws (key 6) and remove crush washers (key 67). Lift off lower casing (key 5). Inspect O-rings (keys 7 and 63) or damage or wear, replace them if necessary.
5. Remove cage (key 78).
6. Remove seat ring (key 2). Inspect seat ring for damage or wear. If damaged, replace with new parts.
7. Remove O-ring (key 34) from body (key 1). Inspect for damage or wear. If damaged, replace with new parts.
8. Lubricate O-ring (key 34) and replace into the body (key 1).
9. Place seat ring (key 2) on top of O-ring in body (key 1) with curved side down and seat edge up.
10. Place cage (key 78) on the top of seat ring (key 2).
11. Place lower casing (key 5) on top of body. Replace crush washers (key 67) and tighten cap screws (key 6). Screw sleeve guide into lower actuator casing (key 5) utilizing cap (key 70).
12. Lubricate the sleeve (key 14) in the upper plate contact area and assemble the diaphragm/plates system on the sleeve system. Tighten screws (key 16) using a “star” criss-cross pattern for five times until proper specified torque is achieved.
13. Screw the special screws (key 68) – already on the sleeve – to fix the diaphragm/plates system on the sleeve system. See Torque Specifications (Table 4) for proper torque values. Tighten special screws (key 68) using a “star” criss-cross pattern until proper specified torque is achieved.
14. Lubricate lower casing (key 5) on the diaphragm contact area.
15. Carefully insert the trim system into the sleeve guide (key 61).
16. Lubricate the diaphragm (key 20) on the upper casing contact area.
17. Lubricate and mount the O-ring (key 69) on the cap (key 70). Lubricate and mount O-rings (key 9) and anti-friction rings (key 8) inside the cap (key 70). Lubricate and mount O-ring (key 153) on the stem (key 147). Carefully place the cap on the upper actuator casing (key 11). Align the travel indicator hole on the cap (key 70) to the upper actuator casing travel indicator hole. Screw 8 screws (key 77) to tighten cap (key 70) to the upper actuator casing (key 11). Bag diaphragm flat to lower casing diaphragm flange contact area. Carefully place the top actuator casing on the top of the lower actuator casing/trim system using a stud to guide.

Note

Rotate the upper casing such that the outer holes for sensing lines are perpendicular to gas flow and outer holes of lower casing.

18. Lubricate threads on bolts (key 21).
19. Bolt together the upper and lower actuator casings (keys 11 and 5) using bolts (key 21), washers (key 22) and nuts (key 23). See Torque Specifications (Table 4) for proper torque. Tighten cap screws using a “star” criss-cross pattern for five times until proper specified torque is achieved.
20. Assemble one nut (key 151) to the stem (key 147) until the specified torque is achieved and then assemble another nut (key 151) to lock the position of stem. Screw on the closing cap (key 146). Mount O-ring (key 75) on the cap (key 70).
21. If present, set the stem (key 139) through the casing hole and tap it into the groove in the diaphragm plate (key 18). Slide the travel indicator fitting (key 141) over the stem and tighten to the cap (key 70).

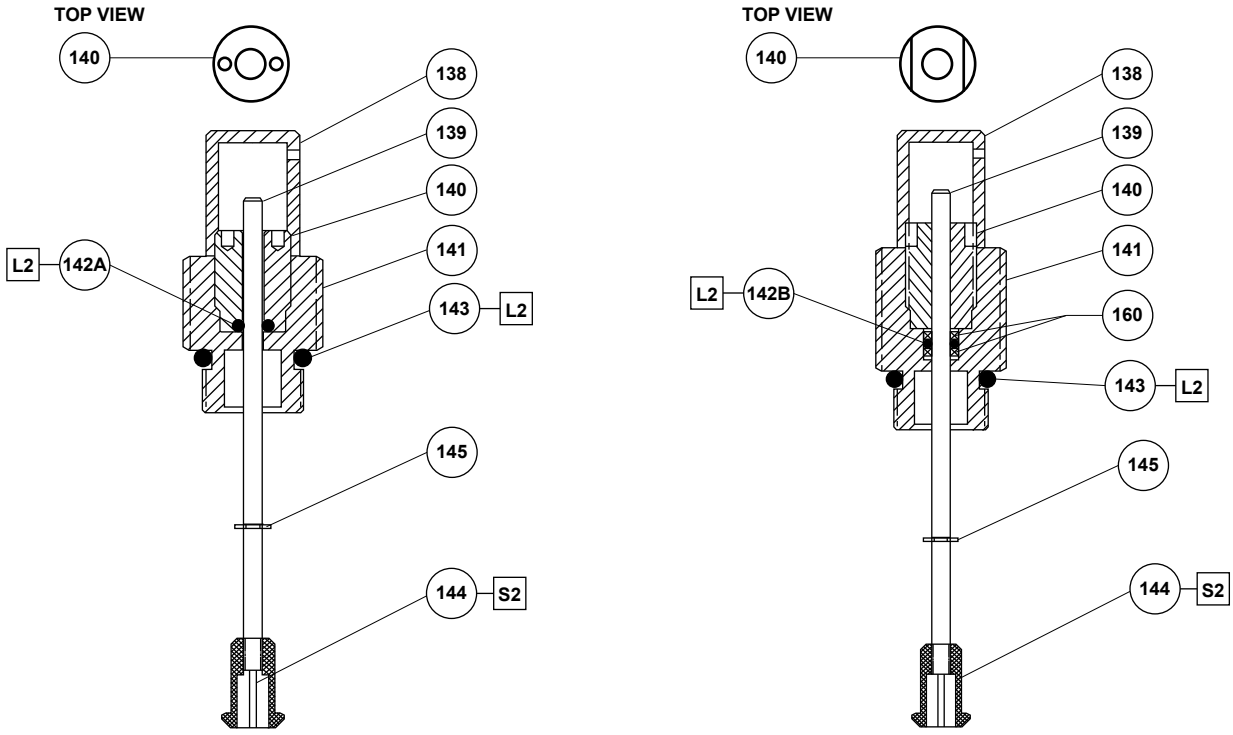


Figure 7. *EZH Series Travel Indicator Assembly*

EZH Series Travel Indicator Maintenance

A new and improved travel indicator has been phased in during 2013. The new version improves the O-ring stem seal to minimize leakage and extend service life. The components of the legacy and new versions are not interchangeable. If maintenance is performed on the new travel indicator, it is recommended to replace the entire travel indicator assembly with the new version. Part numbers for the assemblies are shown in the parts list. Figure 7 shows the difference between the designs. The spare parts kits will support either design. Take care to use the correct O-ring (key 142A or 142B) when performing maintenance, see parts list for the appropriate part number.

1. Remove plastic travel indicator cover (key 138).
2. Loosen travel indicator bushing (key 140) and remove it by sliding it over the travel indicator stem (key 139).
3. Remove indicator fitting (key 141) and inspect O-ring (key 143). Remove O-ring (key 142B) and back-up rings (key 160). Replace and lubricate O-ring if damaged. Pull up on the travel indicator stem (key 139) to force the spring collet (key 144) out of the diaphragm head groove. Examine these parts and the stem for wear and replace if necessary.
4. Examine the retaining ring (key 145) for wear and replace if necessary.
5. Insert the travel indicator stem (key 139) and spring collet (key 144) back into the diaphragm head groove. Replace the indicator fitting (key 141) and O-ring (key 143) and tighten with a referenced torque of 3.7 ft-lbs / 5.0 N•m.
6. Lubricate the O-ring (key 142B) and back-up rings (key 160, 2 required). Place one back-up ring on the stem (key 139) followed by the O-ring and then the other back-up ring. Push into groove of the indicator fitting (key 141).
7. Slide the travel indicator bushing (key 140) over the travel indicator stem (key 139) and tighten firmly in place.
8. Replace the travel indicator cover (key 138) and tighten firmly in place.

PRX Series Maintenance

CAUTION

Always remove spring (key 7) tension before performing maintenance on this unit. To remove spring tension, loosen locknut (key 2) and back out adjusting screw (key 1) until compression is removed from the spring.

Lower Diaphragm Maintenance

1. Disconnect pilot and remove it from the line.
2. Remove machine screws (key 10) from lower cover (key 21) and the separate lower cover from the body (key 16).
3. Use a wrench to hold the stem (key 23) and break loose the stem nut (key 20). Remove the stem nut and washer (key 11).
4. Remove the upper diaphragm plate (key 13), diaphragm (key 14), pad holder (key 22) and O-ring (key 18). Inspect parts for damage or wear, replace if necessary.
5. Remove orifice (key 19) and O-ring (key 17). Inspect the parts for damage or wear and replace if necessary. Lightly lubricate the O-ring and place in the body (key 16). Install the orifice.
6. Set the pad holder (key 22) in the body (key 16).
7. Lightly lubricate the rims of the diaphragm (key 14) and place it on top of the pad holder (key 22). Set the upper diaphragm plate (key 13) on the diaphragm (key 14).
8. Lightly lubricate the O-ring (key 18) and place it in the lower cover (key 21).
9. Place the washer (key 11) and stem nut (key 20) on the stem (key 23) and tighten. *If also performing Upper Case Maintenance, skip to step 2 of the Upper Case Maintenance section.*
10. Insert machine screws (key 10) in the lower cover (key 21) and tighten uniformly to ensure proper seal.

Upper Diaphragm Maintenance

1. Disconnect pilot and remove it from the line.
2. Loosen locknut (key 2) and back out adjusting screw (key 1) until compression is removed from the spring. Remove cap (key 3).
3. Lift the upper spring seat (key 6), spring (key 7) and O-ring (key 4) out of the upper cover (key 8). Inspect O-ring and replace if necessary.
4. Remove the machine screws (key 10) and the washers (key 11), separate the upper cover (key 8) from the body (key 16) and lift the lower spring seat (key 9) away from upper diaphragm nut (key 26). Use a wrench to hold stem (key 23) securely while removing the upper diaphragm nut.
5. Remove remaining loose components: washer (key 11), upper diaphragm plate (key 13), diaphragm (key 14), lower diaphragm plate (key 15) and O-rings (keys 18 and 25). Inspect diaphragm and O-rings for damage or wear and replace if necessary.
6. Lightly lubricate the O-ring (key 25). Place O-ring over the stem (key 23) and press it down into the body (key 16).
7. Set the lower diaphragm plate (key 15) into the body (key 16).
8. Lightly lubricate the rims of the diaphragm (key 14) and place it in the body (key 16) on top of the lower diaphragm plate (key 15).
9. Set the upper diaphragm plate (key 13) on top of the diaphragm (key 14).
10. Place washer (key 11) and stem nut (key 26) on the stem (key 23) and tighten using a wrench to hold the stem.
11. Place the lower spring seat (key 9) on the upper diaphragm nut (key 26) and mount the upper cover (key 8) on top of the body (key 24) and the diaphragm (key 14).
12. Place and uniformly tighten the machine screws (key 10) to hold the body (key 24) and upper cover (key 8) together. Position the diaphragm convolution facing down and make sure that the diaphragm is not deformed and is properly installed.
13. Install spring (key 7) and upper spring seat (key 6) on top of the lower spring seat (key 9) inside the upper cover (key 8). Install Cap (key 3).
14. Screw in adjusting screw (key 1) at desired spring compression and use the lock nut (key 2) to lock the adjusting screws position. Refer to Pilot Adjustment section (page 11) to adjust pilot settings.

Damper and Restrictor Maintenance

1. Remove screw (key 31) and plate (key 29) off from the body (key 16).
2. Remove ring nuts (key 30).
3. Remove damper adjusting screw with hole (key 27). Remove and inspect O-ring (key 28) for damage or wear and replace if necessary. Lightly lubricate O-ring before placing on the adjusting screw. Insert damper adjusting screw into the body (key 16) and tighten. Insert ring nut (key 30) and tighten. Back out damper adjusting screw until it stops.
4. Remove restrictor adjusting screw with hole (key 32). Remove and inspect O-ring (key 28) for damage or wear and replace if necessary. Lightly lubricate O-ring before placing on the adjusting screw. Insert restrictor adjusting screw into the body (key 16) and completely tighten. Insert ring nut (key 30) and completely tighten. Back out restrictor adjusting screw 1/2 turn.

Note

When using a Type PRX/120 pilot with a Type PRX/125 pilot as a monitor, use the following settings:

- **Restrictor - completely tighten and then back out three full turns.**
- **Damper - back out until it stops.**

5. Install plate (key 29) and screw (key 31).

Type SA/2

1. Disconnect pilot supply filter regulator and remove it from the line.
2. Remove cap screws, washers and nuts (keys 2, 9 and 10) from body (key 7) and separate filter cover (key 11) and regulator cover (key 19) from the body (key 7). Separate loose components from the body such as the spring (key 1), washer (key 3), plate (key 4), filter net (key 8), felt (key 12), diaphragm (key 18), spring washer (key 20) and nut (key 21).
3. Remove and inspect O-ring (key 13) for damage or wear and replace if necessary. Lightly lubricate the O-ring before placing it back in the filter cover (key 11).
4. Clean filter net (key 8). Replace felt (key 12).
5. Inspect diaphragm (key 18) for damage or wear and replace if necessary. Check the seating surface of the screw unit (key 17) for erosion, scratches, spurs or other damage and replace if necessary.
6. Unscrew and remove the regulator seat (key 5). Inspect O-ring (key 6) for damage or wear and replace if necessary. Lightly lubricate the O-ring and place it on the regulator seat.
7. Pull pad holder unit (key 15) out of the body (key 7). Inspect the seat for damage, replace if necessary.
8. Set the pad holder unit (key 15) on the spring (key 14) and insert the regulator seat (key 5). Tighten the regulator seat until it stops.
9. Lightly lubricate the outer and inner rims of the diaphragm (key 18). Place the diaphragm onto the screw unit (key 17) and slide the screw unit into the regulator seat (key 5). Place plate (key 4), washer (key 3) and spring washer (key 20) and screw nut (key 21) into the screw unit. Use care to avoid damage to parts when reassembling.
10. Set the spring (key 1) on top of the nut (key 21).
11. Align the regulator cover (key 19) over the body (key 7) with the sense port (V) opposite the pilot supply port (R).
12. Place the felt (key 12) and filter net (key 8), one on each side of the felt, on the filter cover (key 11).
13. Pick up the body (key 7) and place it on the filter cover (key 11) with the inlet port (M) aligned vertically with the sense port (V).
14. Insert cap screws (key 2). Place washers (key 9) and nuts (key 10) on the end of the cap screws. Tighten the nuts.

Parts Ordering

Each EZH or EZHSO Series regulator is assigned a serial number, which can be found on the nameplate. Refer to the serial number when contacting your local Sales Office for technical information or when ordering parts.

When ordering replacement parts, reference the key number of each needed part as found in the following parts list. Separate kit containing all recommended spare parts is available.

Parts List

EZH and EZHSO Series Main Valve (Figures 8 and 9)

Key	Description	Part Number
	EZH Series	
	Disk Parts Kits	
	NPS 1, 2 and 3 / DN 25, 50 and 80 (include keys 29, 30, 32, 33, 34 and 62)	
	NPS 4 / DN 100 (include keys 29, 30, 32, 33, 69, 71 and 75)	
	NPS 1 / DN 25	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH1X00N12
	Fluorocarbon (FKM)	REZH1X00F12
	Polyurethane (PU)	REZH1X00P12
	NPS 2 / DN 50	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH2X00N12
	Fluorocarbon (FKM)	REZH2X00F12
	Polyurethane (PU)	REZH2X00P12
	NPS 3 / DN 80	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH3X00N12
	Fluorocarbon (FKM)	REZH3X00F12
	Polyurethane (PU)	REZH3X00P12
	NPS 4 / DN 100	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH4X00N12
	Fluorocarbon (FKM)	REZH4X00F12
	EZHSO Series	
	Disk Parts Kits	
	NPS 1, 2 and 3 / DN 25, 50 and 80 (include keys 29, 30, 34, 62 and 154)	
	NPS 4 / DN 100 (include keys 29, 30, 69, 71, 75 and 154)	
	NPS 1 / DN 25	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS1X0N12
	Fluorocarbon (FKM)	REZHS1X0F12
	Polyurethane (PU)	REZHS1X0P12
	NPS 2 / DN 50	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS2X0N12
	Fluorocarbon (FKM)	REZHS2X0F12
	Polyurethane (PU)	REZHS2X0P12
	NPS 3 / DN 80	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS3X0N12
	Fluorocarbon (FKM)	REZHS3X0F12
	Polyurethane (PU)	REZHS3X0P12
	NPS 4 / DN 100	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS4X0N12
	Fluorocarbon (FKM)	REZHS4X0F12
	EZH Series	
	Full Repair Kits	
	NPS 1, 2 and 3 / DN 25, 50 and 80 (include keys 4, 7, 8, 9, 15, 17, 20, 28, 29, 30, 32, 33, 34, 62, 142B and 143)	
	NPS 4 / DN 100 (include keys 8, 9, 15, 17, 20, 29, 30, 32, 33, 34, 63, 64, 67, 69, 71, 75, 142B and 143)	
	NPS 1 / DN 25	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH1X00N22
	Fluorocarbon (FKM)	REZH1X00F22
	Polyurethane (PU)	REZH1X00P22
	NPS 2 / DN 50	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH2X00N22
	Fluorocarbon (FKM)	REZH2X00F22
	Polyurethane (PU)	REZH2X00P22
	NPS 3 / DN 80	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH3X00N22
	Fluorocarbon (FKM)	REZH3X00F22
	Polyurethane (PU)	REZH3X00P22
	NPS 4 / DN 100	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZH4X00N22
	Fluorocarbon (FKM)	REZH4X00F22
	EZHSO Series	
	Full Repair Kits	
	NPS 1, 2 and 3 / DN 25, 50 and 80 (include keys 4, 7, 8, 9, 15, 17, 20, 28, 29, 30, 34, 62, 142B, 143, 153 and 154)	
	NPS 4 / DN 100 (include keys 8, 9, 15, 17, 20, 29, 30, 34, 63, 64, 67, 69, 71, 75, 142B, 143, 153, 154 and 158)	
	NPS 1 / DN 25	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS1X0N22
	Fluorocarbon (FKM)	REZHS1X0F22
	Polyurethane (PU)	REZHS1X0P22
	NPS 2 / DN 50	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS2X0N22
	Fluorocarbon (FKM)	REZHS2X0F22
	Polyurethane (PU)	REZHS2X0P22
	NPS 3 / DN 80	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS3X0N22
	Fluorocarbon (FKM)	REZHS3X0F22
	Polyurethane (PU)	REZHS3X0P22
	NPS 4 / DN 100	
	Nitrile (NBR) and Fluorocarbon (FKM)	REZHS4X0N22
	Fluorocarbon (FKM)	REZHS4X0F22
1	Body	See the following Table
2	Seat Ring	
	NPS 1 / DN 25 Body	
	For 100% Capacity	ERAA04303A0
	For 80% Capacity	ERAA06540A0
	For 50% Capacity	ERAA06541A0
	For 30% Capacity	ERAA06542A0
	NPS 2 / DN 50 Body	
	For 100% Capacity	ERAA04296A0
	For 80% Capacity	ERAA06553A0
	For 50% Capacity	ERAA06576A0
	For 30% Capacity	ERAA06577A0
	NPS 3 / DN 80 Body	
	For 100% Capacity	M0297320X12
	For 80% Capacity	M0300960X12
	For 50% Capacity	M0300930X12
	For 30% Capacity	M0300730X12
	NPS 4 / DN 100 Body (EZH Series only)	
	For 100% Capacity	M0303250X12
	For 80% Capacity	M0303430X12
	For 50% Capacity	M0303420X12
	For 30% Capacity	M0303410X12
	NPS 4 / DN 100 Body (EZHSO Series only)	
	For 100% Capacity	ERAA00273A0
	For 80% Capacity	ERAA00274A0
	For 50% Capacity	ERAA00275A0
	For 30% Capacity	ERAA00276A0
3(1)	Cage	
	NPS 1 / DN 25 **(standard)**	GE31405X012
	NPS 2 / DN 50	
	Standard	GE37679X012
	Whisper Trim™ Cage	GE37959X012
	NPS 3 / DN 80	
	Standard	GE38018X012
	Whisper Trim Cage	GE38021X012
4*	Anti-Friction Ring (2 required)	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only	M0274090X12
5	Actuator Lower Casing	
	NPS 1 / DN 25 Body	M0296970X12
	NPS 2 / DN 50 Body	M0295830X12
	NPS 3 / DN 80 Body	GE44397X012
	NPS 4 / DN 100 Body	M0300770X12
6	Cap Screws	
	NPS 1 / DN 25 Body (4 required)	M4691008X12
	NPS 2 / DN 50 Body (8 required)	GE11386X012
	NPS 3 / DN 80 Body (8 required)	GE11387X012
	NPS 4 / DN 100 Body (8 required)	M4691020X12
7*	O-ring	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies	19B2838X012
	NPS 4 / DN 100 Body	M6020169X12
8*	Anti-Friction Rings (4 required)	M0194530X12
9*	O-ring (2 required)	
	NPS 1 / DN 25	M6020019X12
	NPS 2 / DN 50	M6020029X12
	NPS 3 / DN 80	M6020036X12
	NPS 4 / DN 100	
	EZH Series	M6020044X12

*Recommended spare part

1. When retrofitting an EZH Series with pins with the new cage, it is also necessary to order the Seat Ring.

Key 1, EZH and EZHSO Series Main Valve Body Part Numbers

BODY SIZE		BODY MATERIAL	END CONNECTION STYLE	BODY STYLE	
NPS	DN			Standard or Tapped Inlet (Pilot Supply)	Tapped Inlet and Tapped Outlet
1	25	Cast Iron	NPT	GE11518X012	- - - - - - - - - -
			CL125 FF	GE11528X012	14B5623X012
			CL250 RF	GE11580X012	14B5623X022
		WCC Steel	NPT	GE11581X012	- - - - - - - - - -
			SWE	GE11440X012	
			CL150 RF	GE11583X012	14B5623X032
			CL300 RF	GE11607X012	14B5623X042
			CL600 RF	GE11608X012	14B5623X052
			SCH 40 BWE	GE11610X012	- - - - - - - - - -
			SCH 80 BWE	GE11611X012	
			PN 16/40 RF	GE13625X012	
2	50	Cast Iron	NPT	GE10583X012	
			CL125 FF	GE10585X012	
			CL250 RF	GE10587X012	
		WCC Steel	NPT	GE10588X012	
			SWE	GE10682X012	
			CL150 RF	GE10676X012	14B5834X032
			CL300 RF	GE10678X012	14B5834X042
			CL600 RF	GE10679X012	14B5834X052
			SCH 40 BWE	GE10680X012	- - - - - - - - - -
			SCH 80 BWE	GE10681X012	
			PN 16/40	GE12898X012(1)	
3	80	Cast Iron	CL125 FF	GE10689X012	
			CL250 RF	GE10698X012	
		WCC Steel	CL150 RF	GE10699X012	14B5835X032
			CL300 RF	GE10700X012	14B5835X042
			CL600 RF	GE10701X012	14B5835X052
			SCH 40 BWE	GE10702X012	- - - - - - - - - -
			SCH 80 BWE	GE10703X012	
			PN 25/40	GE13594X012(1)	
4(2)	100(2)	Cast Iron	CL125 FF	GE10707X012	
			CL250 RF	GE10822X012	
		WCC Steel	CL150 RF	GE10835X012	14B5836X032
			CL300 RF	GE10839X012	14B5836X042
			CL600 RF	GE10842X012	14B5836X052
			SCH 40 BWE	GE10843X012	- - - - - - - - - -
			SCH 80 BWE	GE10844X012	

1. Not available for Standard body.
2. Not available for Tapped Inlet (Pilot Supply) body.

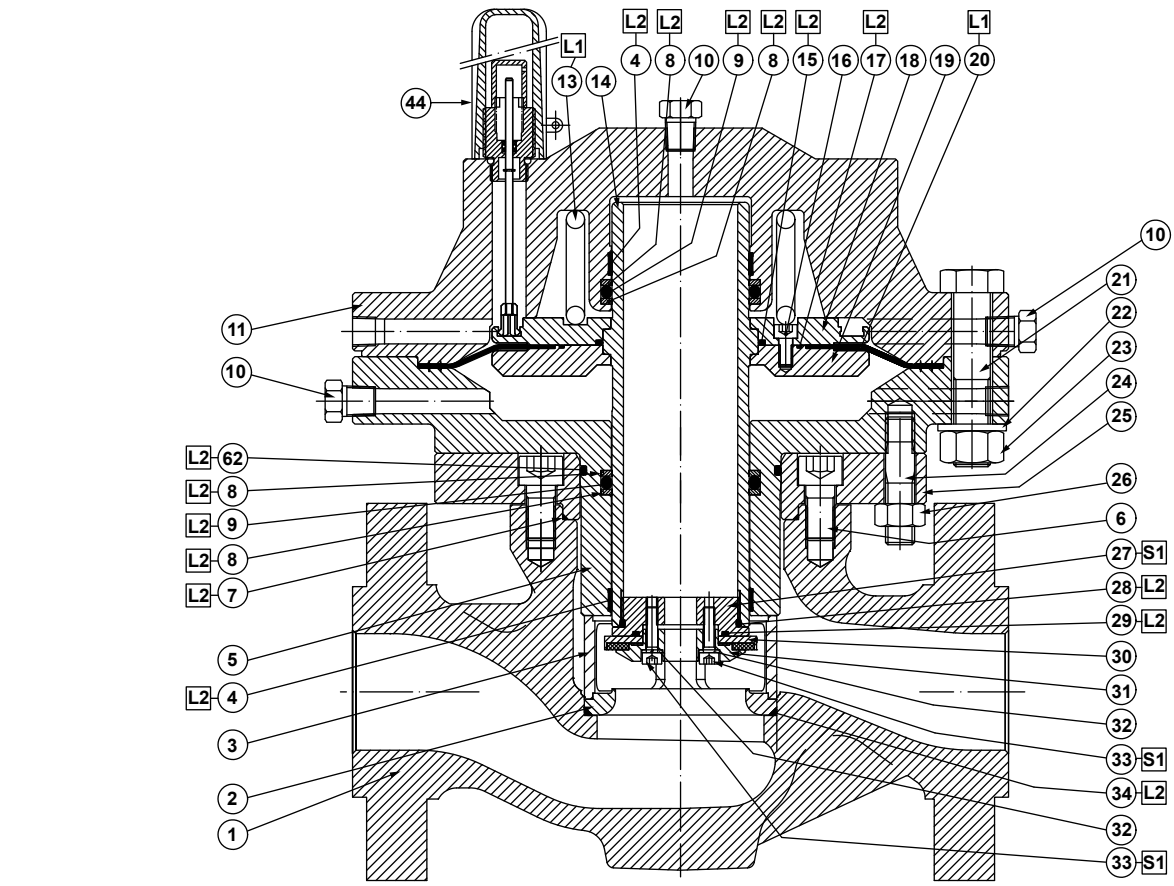
Table 5. *EZH/EZHSO Series Travel Indicator Assemblies Part Numbers(1)*

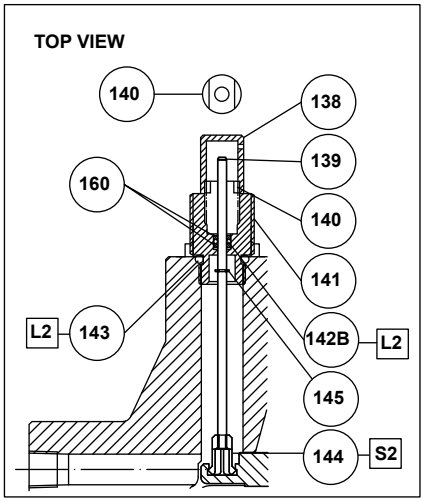
DESCRIPTION	MATERIAL	NPS 1 / DN 25	NPS 2 / DN 50	NPS 3 / DN 80	NPS 4 / DN 100
EZH and EZHSO Series	Nitrile (NBR)	ERSA01539A0	ERSA01546A0	ERSA01547A0	ERSA01549A0

1. The assemblies include keys 138, 139, 140, 141, 142B, 143, 144, 145, 160 and 192.

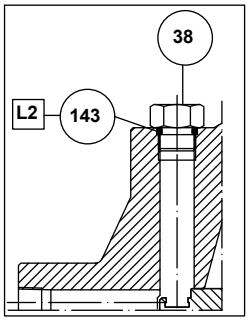
Table 6. *EZH/EZHSO Series Sleeve Assemblies Part Numbers*

DESCRIPTION	NPS 1 / DN 25	NPS 2 / DN 50	NPS 3 / DN 80	NPS 4 / DN 100
EZHSO Series	ERCA02689A0	ERCA02690A0	ERCA02691A0	M2201053X12
EZH Series	- - - - - - - - - -	- - - - - - - - - -	- - - - - - - - - -	M2201052X12

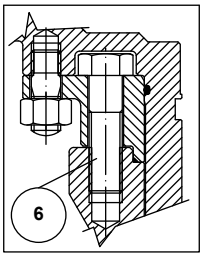




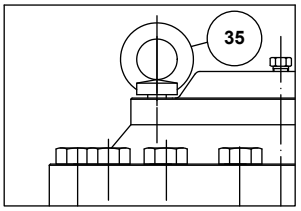
IMPROVED TRAVEL INDICATOR DETAIL



VERSION WITHOUT TRAVEL INDICATOR DETAIL



FOR NPS 1 / DN 25 EZH SERIES VERSION ONLY



FOR NPS 3 / DN 80 EZH SERIES VERSION ONLY

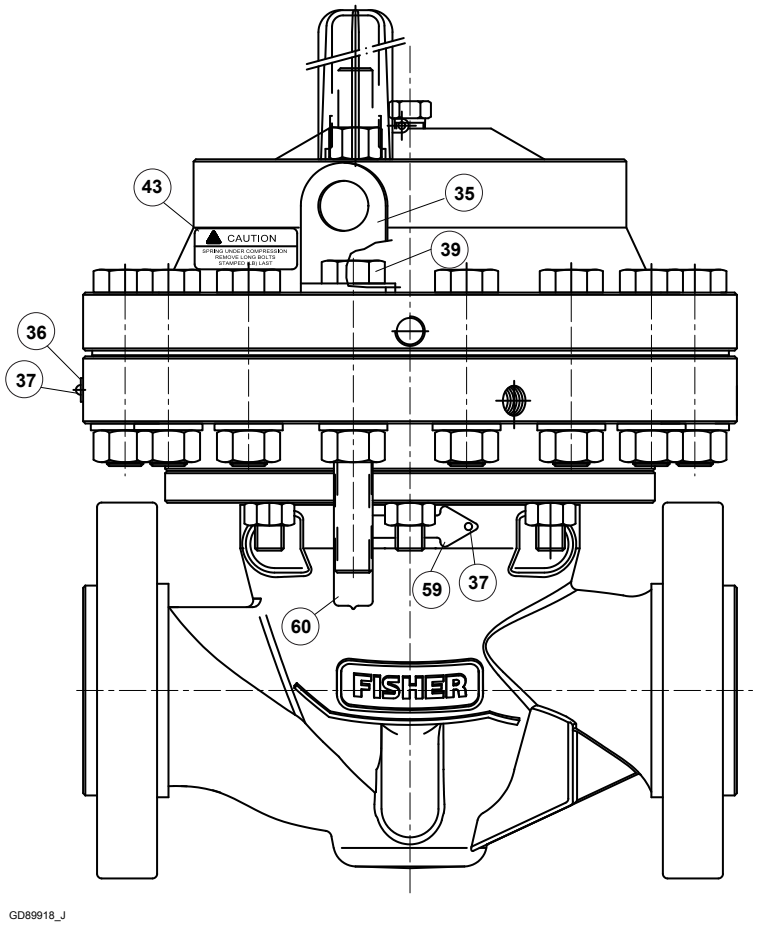
NPS 1 THROUGH 3 / DN 25 THROUGH 80

GD89918_H

☐ **APPLY LUBRICANT (L) / SEALANT (S)[1]:**
L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
L2 = SILICONE-BASED GREASE
S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

1. Lubricant and sealant must be selected such that they meet the temperature requirements.

Figure 8. *EZH Series Main Valve Assembly*



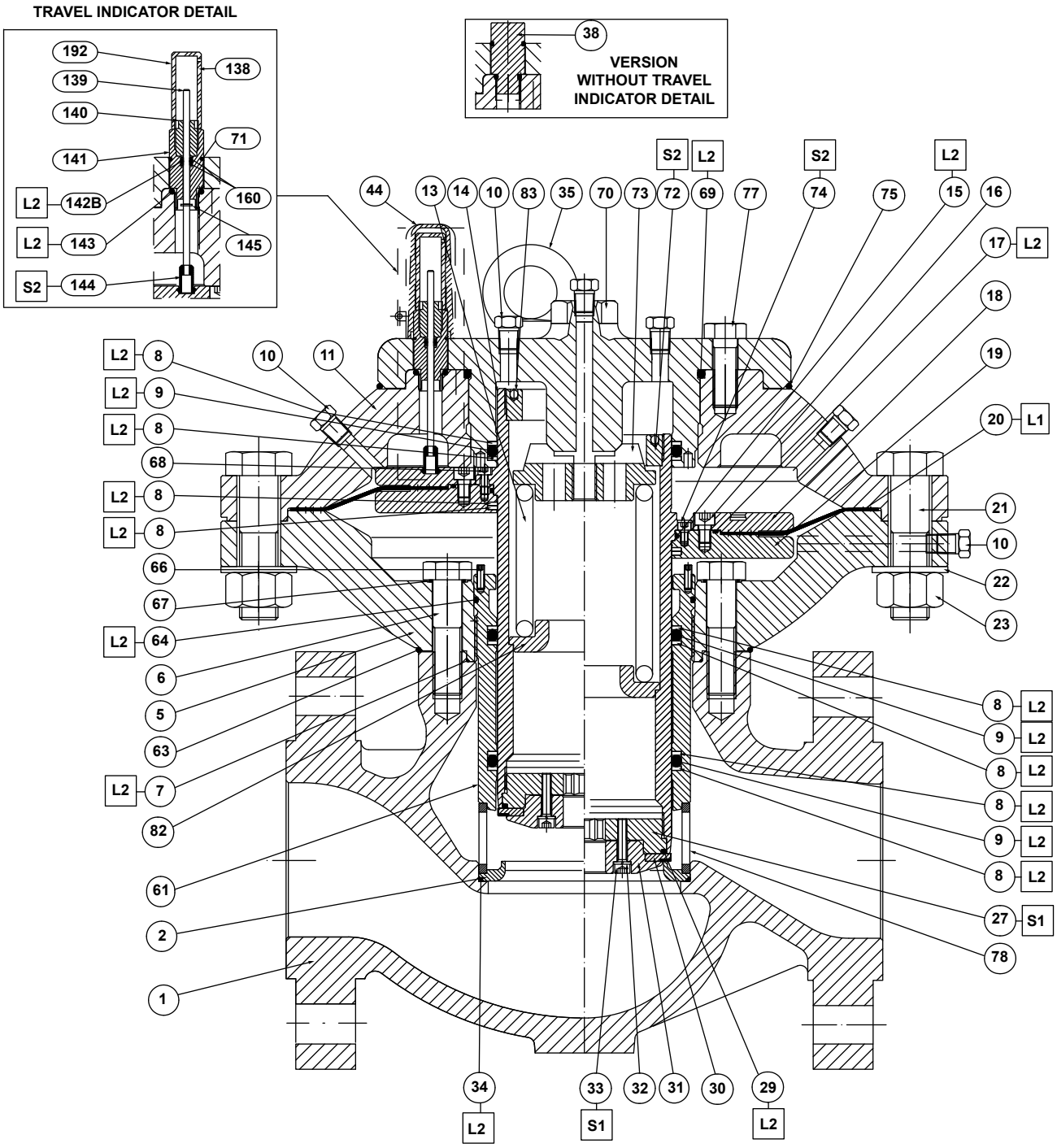
NPS 1 THROUGH 3 / DN 25 THROUGH 80

Figure 8. *EZH Series Main Valve Assembly (continued)*

Key	Description	Part Number
9*	O-ring (2 required) (continued)	
	EZHSO Series	
	Nitrile (NBR) and Fluorocarbon (FKM)	ERAA00262A0
	Fluorocarbon (FKM)	M6020044X12
10	Pipe Plug	1A767524662
11	Actuator Upper Casing	
	NPS 1 / DN 25 Body	M0297220X12
	NPS 2 / DN 50 Body	M0296950X12
	NPS 3 / DN 80 Body	GE44420X012
	NPS 4 / DN 100 Body	M0300760X12
13	Spring	
	EZH Series	
	NPS 1 / DN 25 Body	M0194590X12
	NPS 2 / DN 50 Body	M0191440X12
	NPS 3 / DN 80 Body	M0192240X12
	NPS 4 / DN 100 Body(2)	M0300740X12
	EZHSO Series	
	NPS 1 / DN 25 Body(2)	GE41510X012
	NPS 2 / DN 50 Body(2)	GE41082X012
	NPS 3 / DN 80 Body(2)	M0192240X12
	NPS 4 / DN 100 Body(2)	M0303370X12
14	Sleeve	
	EZH Series	
	NPS 1 / DN 25 Body	M0274230X12
	NPS 2 / DN 50 Body	M0272600X12

Key	Description	Part Number
14	Sleeve (continued)	
	EZH Series (continued)	
	NPS 3 / DN 80 Body	M0276310X12
	NPS 4 / DN 100 Body(2)	M0300050X12
	EZHSO Series	
	NPS 1 / DN 25 Body(2)	GE29608X012
	NPS 2 / DN 50 Body(2)	GE28380X012
	NPS 3 / DN 80 Body(2)	GE29306X012
	NPS 4 / DN 100 Body(2)	GE44704X012
15*	O-ring	M6020021X12
16	Socket Head Cap Screw	
	NPS 1 / DN 25 Body (6 required)	M5011005X12
	NPS 2 / DN 50 Body (6 required)	19B0829X012
	NPS 3 / DN 80 Body (12 required)	M5011140X12
	NPS 4 / DN 100 Body (8 required)	M5011157X12
17*	O-ring	M6020120X12
18	Inlet Plate	
	NPS 1 / DN 25 Body	M0194440X12
	NPS 2 / DN 50 Body	M0194620X12
	NPS 3 / DN 80 Body	M0192080X12
	NPS 4 / DN 100 Body	M0300020X12
19	Outlet Plate	
	NPS 1 / DN 25 Body	M0194480X12
	NPS 2 / DN 50 Body	M0194660X12
	NPS 3 / DN 80 Body	M0192120X12
	NPS 4 / DN 100 Body	M0300030X12

*Recommended spare part
2. Parts are not orderable. See sleeve subassembly table if it needs to be replaced.

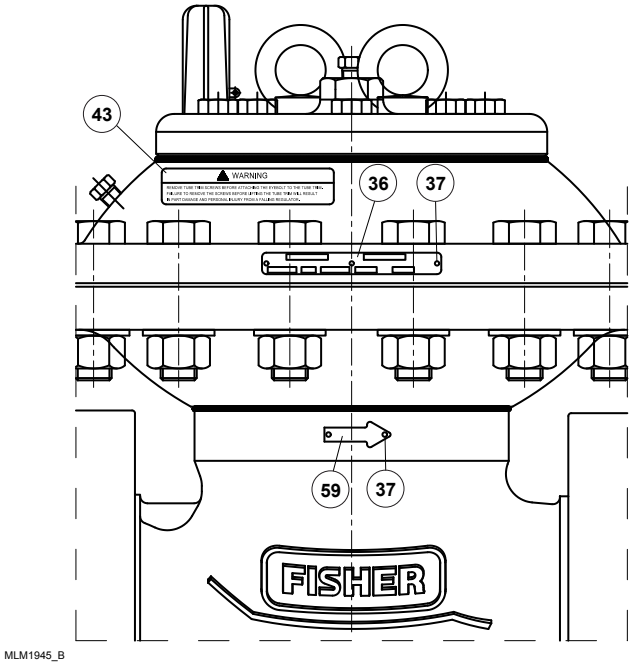


MLM1945_B

☐ **APPLY LUBRICANT (L) / SEALANT (S)[1]:**
L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
L2 = SILICONE-BASED GREASE
S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

1. Lubricant and sealant must be selected such that they meet the temperature requirements.

Figure 8. *EZH Series Main Valve Assembly (continued)*

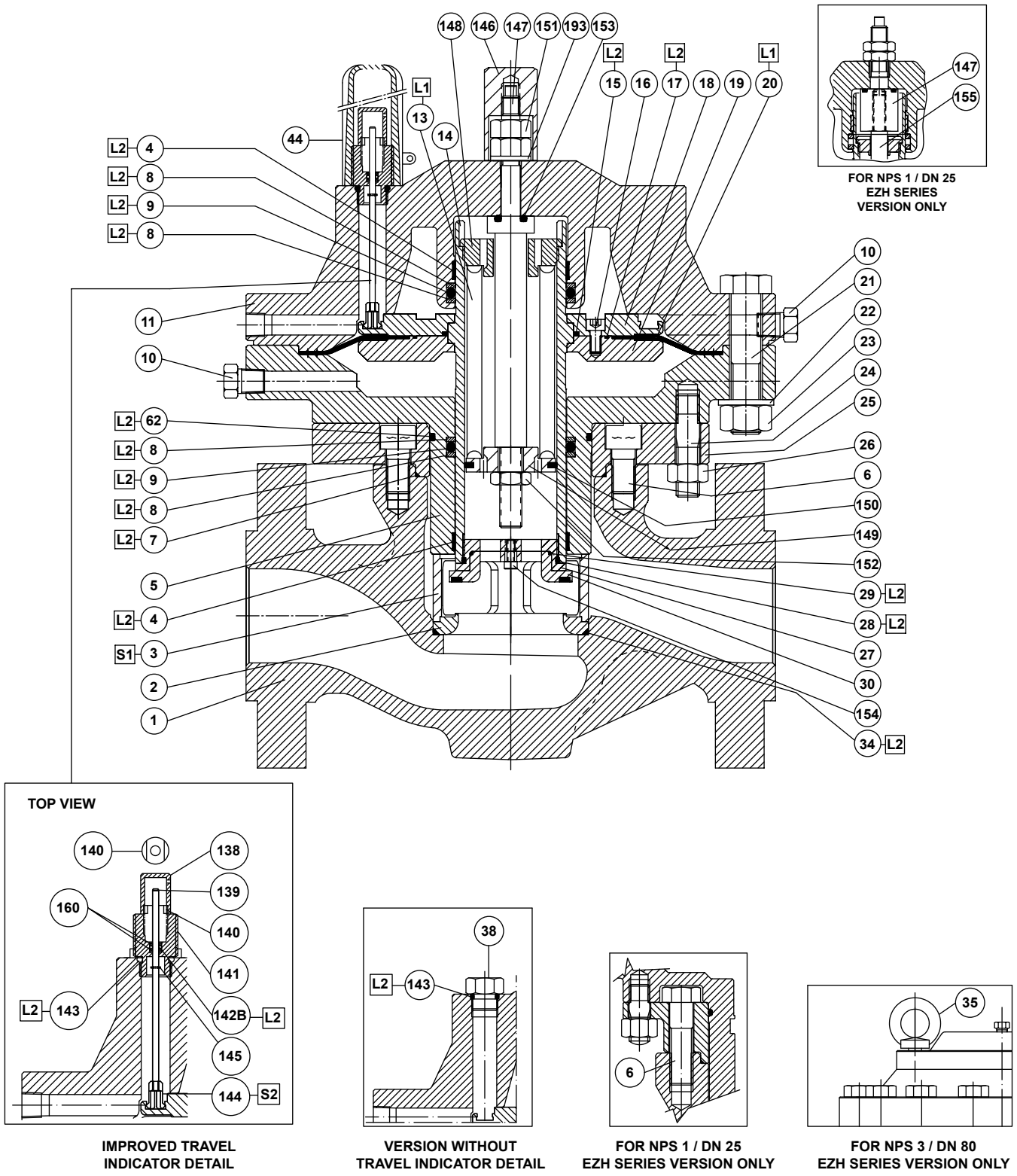


NPS 4 / DN 100

Figure 8. *EZH Series Main Valve Assembly (continued)*

Key	Description	Part Number
20*	Diaphragm	
	NPS 1 / DN 25 Body	M0194450X12
	NPS 2 / DN 50 Body	M0194630X12
	NPS 3 / DN 80 Body	M0192090X12
	NPS 4 / DN 100 Body	M0194750X12
21	Cap Screw	
	NPS 1 / DN 25 Body (14 required for EZH Series, 16 required for EZHSO Series)	1A361524052
	NPS 2 / DN 50 Body (14 required for EZH Series, 16 required for EZHSO Series)	1A936224052
	NPS 3 / DN 80 Body (14 required for EZH Series, 16 required for EZHSO Series)	GF05679X012
	NPS 4 / DN 100 Body (16 required)	M4691022X12
22	Plain Washer	
	NPS 1 / DN 25 Body (16 required)	1A518925072
	NPS 2 / DN 50 Body (16 required)	1A3517K0012
	NPS 3 / DN 80 Body (16 required)	1A519828992
	NPS 4 / DN 100 Body (16 required)	M5001015X12
23	Hex Nut	
	NPS 1 / DN 25 Body (16 required)	1A341224122
	NPS 2 / DN 50 Body (16 required)	1A343324122
	NPS 3 / DN 80 Body (16 required)	ERCA01576A0
	NPS 4 / DN 100 Body (16 required)	M4692005X12
24	Continuous Thread Stud Bolt	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only	
	NPS 1 / DN 25 Body (4 required)	M4693002X12
	NPS 2 / DN 50 Body (6 required)	GE00808X012
	NPS 3 / DN 80 Body (4 required)	M4693003X12
25	Intermediate Flange	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only	
	NPS 1 / DN 25 Body	M0297240X12
	NPS 2 / DN 50 Body	M0295800X12
	NPS 3 / DN 80 Body	GE44403X012
26	Hex Nut	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only	
	NPS 1 / DN 25 Body (4 required)	1A341224122
	NPS 2 / DN 50 Body (6 required)	1A341224122
	NPS 3 / DN 80 Body (4 required)	M4692004X12
27	Sleeve Adaptor	
	EZH Series	
	NPS 1 / DN 25 Body	M0274250X12
	NPS 2 / DN 50 Body	M0272570X12
	NPS 3 / DN 80 Body	M0276340X12
	NPS 4 / DN 100 Body[2]	M0300090X12
	EZHSO Series	
	NPS 1 / DN 25 Body[2]	GE40691X012
	NPS 2 / DN 50 Body[2]	GE40621X012
	NPS 3 / DN 80 Body[2]	GE41032X012
	NPS 4 / DN 100 Body[2]	GE41614X012
28*	O-ring	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only[3]	M6020144X12
29*	O-ring[3]	
	EZH SERIES	
	NPS 1 / DN 25	M6020143X12
	NPS 2 / DN 50	M6020112X12
	NPS 3 / DN 80	M6020147X12
	NPS 4 / DN 100	M6020171X12
	EZHSO SERIES	
	NPS 1 / DN 25	GE23545X012
	NPS 2 / DN 50	1H9938X0012
	NPS 3 / DN 80	1R397106382
	NPS 4 / DN 100	
	Nitrile (NBR) and Fluorocarbon (FKM)	1H742206992
	Fluorocarbon (FKM)	M6020171X12

*Recommended spare part
2. Parts are not orderable. See sleeve subassembly table if it needs to be replaced.
3. Included also in EZHSO Series sleeve subassembly (NPS 1, 2 and 3 / DN 25, 50 and 80).



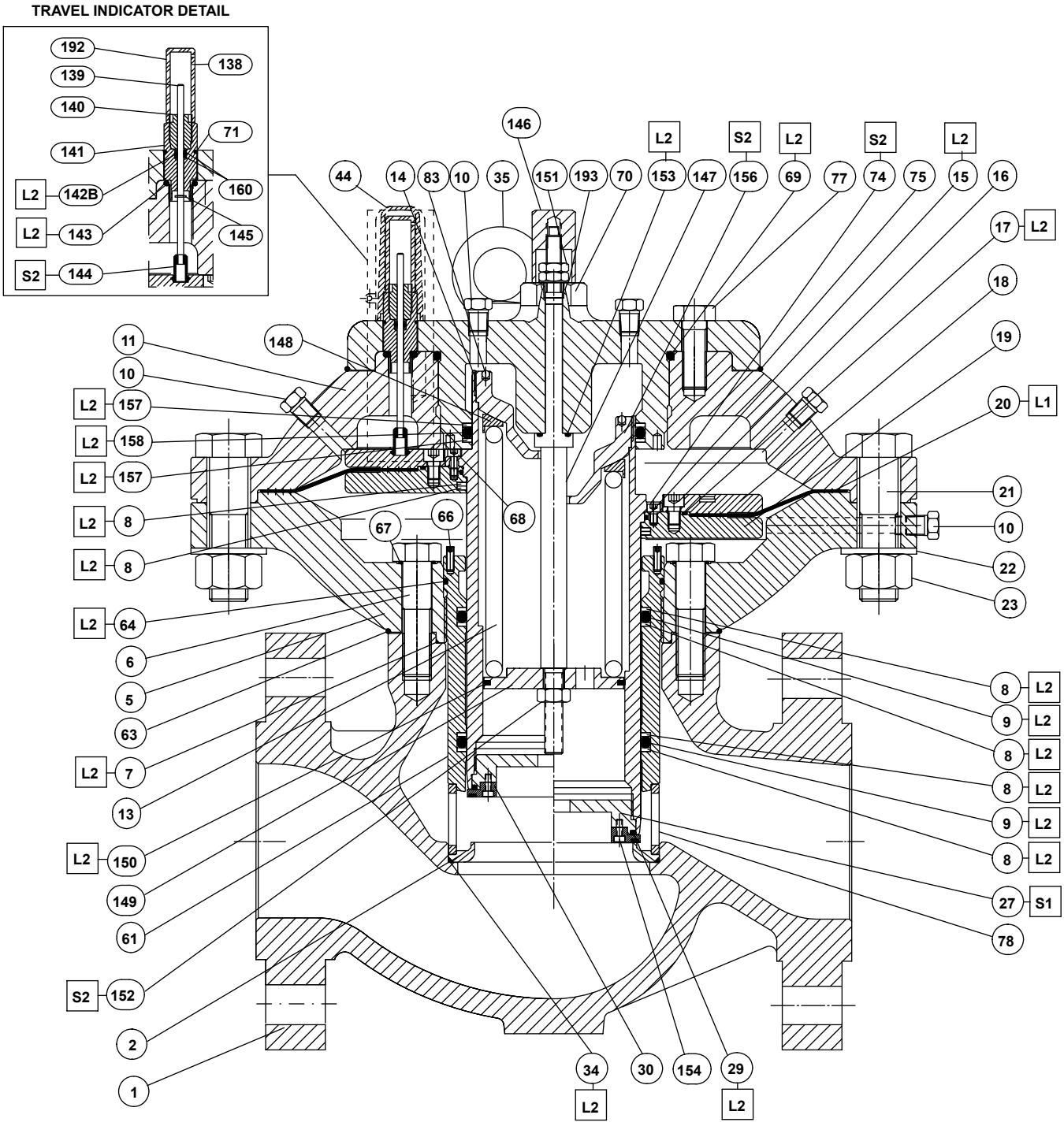
NPS 1 THROUGH 3 / DN 25 THROUGH 80

GE42373_D

☐ **APPLY LUBRICANT (L) / SEALANT (S)[1]:**
L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
L2 = SILICONE-BASED GREASE
S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

1. Lubricant and sealant must be selected such that they meet the temperature requirements.

Figure 9. *EZHSO Series Main Valve Assembly*



GE32477_D

NPS 4 / DN 100

☐ **APPLY LUBRICANT (L) / SEALANT (S)[1]:**
L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
L2 = SILICONE-BASED GREASE
S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

1. Lubricant and sealant must be selected such that they meet the temperature requirements.

Figure 9. *EZHSO Series Main Valve Assembly (continued)*

Key	Description	Part Number
30*	Disk Holder Assembly	
	EZH Series	
	NPS 1 / DN 25 Body	
	Nitrile (NBR)	M0280900X12
	Fluorocarbon (FKM)	M0282130X12
	Polyurethane (PU)	ERAA07132A0
	NPS 2 / DN 50 Body	
	Nitrile (NBR)	M0280910X12
	Fluorocarbon (FKM)	M0282140X12
	Polyurethane (PU)	ERAA07133A0
	NPS 3 / DN 80 Body	
	Nitrile (NBR)	M0280920X12
	Fluorocarbon (FKM)	M0282150X12
	Polyurethane (PU)	ERAA10096A0
	NPS 4 / DN 100 Body	
	Nitrile (NBR)	M0299090X12
	Fluorocarbon (FKM)	M0300120X12
	EZHSO Series	
	NPS 1 / DN 25 Body	
	Nitrile (NBR)	GE42269X012
	Fluorocarbon (FKM)	GE42269X022
	Polyurethane (PU)	ERAA07132A0
	NPS 2 / DN 50 Body	
	Nitrile (NBR)	GE42168X012
	Fluorocarbon (FKM)	GE42168X022
	Polyurethane (PU)	ERAA07133A0
	NPS 3 / DN 80 Body	
	Nitrile (NBR)	GE42244X012
	Fluorocarbon (FKM)	GE42244X022
	Polyurethane (PU)	ERAA10096A0
	NPS 4 / DN 100 Body	
	Nitrile (NBR)	GE44998X012
	Fluorocarbon (FKM)	GE44998X022
31	Disk Retainer	
	EZH Series only, Nitrile (NBR) and Fluorocarbon (FKM)	
	NPS 1 / DN 25 Body	M0274160X12
	NPS 2 / DN 50 Body	M0272750X12
	NPS 3 / DN 80 Body	M0276250X12
	NPS 4 / DN 100 Body	M0300100X12
	EZH Series, Polyurethane (PU)	
	NPS 1/ DN 25	ERAA04846A0
	NPS 2 / DN 50	ERAA04789A0
	NPS 3 / DN 80	ERAA05023A0
	EZHSO Series, Polyurethane (PU)	
	NPS 1 / DN 25	ERAA03714A0
	NPS 2 / DN 50	ERAA03633A0
	NPS 3 / DN 80	ERAA04692A0
32	Lock Washer, EZH Series only	
	NPS 1 / DN 25 Body (1 required)	M5077005X12
	NPS 2 / DN 50 Body (2 required)	19B0819X012
	NPS 3 / DN 80 Body (3 required)	M5077001X12
	NPS 4 / DN 100 Body (4 required)	M5001004X12
33	Socket Head Cap Screw, EZH Series only	
	NPS 1 / DN 25 Body (1 required)	M5011131X12
	NPS 2 / DN 50 Body (2 required)	18B5515X012
	NPS 3 / DN 80 Body (3 required)	M5011017X12
	NPS 4 / DN 100 Body (4 required)	M5011018X12
34*	O-ring	
	NPS 1 / DN 25	
	Nitrile (NBR)	M6010099X12
	Fluorocarbon (FKM)	M6020065X12
	NPS 2 / DN 50	
	Nitrile (NBR)	M6010109X12
	Fluorocarbon (FKM)	M6020159X12
	NPS 3 / DN 80	
	Nitrile (NBR)	M6010247X12
	Fluorocarbon (FKM)	M6020165X12
	NPS 4 / DN 100	
	Nitrile (NBR)	M6010126X12
	Fluorocarbon (FKM)	M6020127X12

Key	Description	Part Number
35	Bracket or Eyebolt (2 required)	
	NPS 1 / DN 25 Body - Bracket	M0220960X12
	NPS 2 / DN 50 Body - Bracket	M0278570X12
	NPS 3 / DN 80 Body - Eyebolt	M5095001X12
	NPS 4 / DN 100 Body - Eyebolt	M5095001X12
36	Nameplate	- - - - - - - - - - -
37	Drive Screw (2 required)	- - - - - - - - - - -
38	Travel Indicator Plug	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies	M0297680X12
	NPS 4 / DN 100 Body	M0303680X12
39	Long Bolt (2 required)	
	EZH Series	
	NPS 1 / DN 25 Body	GE07221X012
	NPS 2 / DN 50 Body	GE00606X012
	NPS 3 / DN 80 Body	ERCA01574A0
43	Caution/Warning Label	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies (2 required)	- - - - - - - - - - -
	NPS 4 / DN 100 Body (1 required)	- - - - - - - - - - -
44	Adjusting Screw Cap	
	NPS 1 / DN 25 Body	24B1301X012
	NPS 2 / DN 50 Body	24B1301X012
	NPS 3 and 4 / DN 80 and 100 Bodies	24B1301X012
59	Flow Arrow	
	NPS 1 / DN 25 Body	- - - - - - - - - - -
	NPS 2 / DN 50 Body	- - - - - - - - - - -
	NPS 3 / DN 80 Body	- - - - - - - - - - -
	NPS 4 / DN 100 Body	- - - - - - - - - - -
60	Protective Cap (2 required)	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only	
	NPS 1 / DN 25 Body	T13659T0102
	NPS 2 / DN 50 Body	T13659T0072
	NPS 3 / DN 80 Body	T13659T0102
61	Sleeve Guide	
	NPS 4 / DN 100 Body only	M0300360X12
62*	O-ring	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only	See Parts Kits
63*	O-ring	M6020172X12
64*	O-ring	M6020139X12
66	Socket Head Set Screw	
	NPS 4 / DN 100 Body Only (8 required)	M5021047X12
67	Crush Washer	
	NPS 4 / DN 100 Body Only (8 required)	M4501738X12
68	Special Screw	
	NPS 4 / DN 100 Body Only (8 required)	M0300040X12
69*	O-ring	M6020149X12
70	Cap	
	NPS 4 / DN 100 Body, EZH Series Cap	M0299980X12
	NPS 4 / DN 100 Body, EZHSO Series Cap	GE44707X012
71*	O-ring	M6020175X12
72	Locking Nut	
	EZH Series NPS 4 / DN 100 Body only(4)	M0300060X12
73	Upper Spring Seat, EZH Series only	
	NPS 4 / DN 100 Body only(4)	M0300070X12
74	Hex Socket Cap Screw	
	NPS 4 / DN 100 Body only	M5011135X12
75*	O-ring	M6020117X12
77	Screw	
	NPS 4 / DN 100 Body only (8 required)	M5009048X12
78	Cage(1)	
	NPS 4 / DN 100 Body only	
	Standard	M0303260X12
	Whisper Trim™ Cage	M0303520X12
82	Lower Spring Seat, EZH Series only	
	NPS 4 / DN 100 Body only(4)	M0300080X12
83	Ball Bearing (2 required)	
	NPS 4 / DN 100 Body only(4)	M4500574X12

*Recommended spare part

1. When retrofitting an EZH Series with pins with the new cage, it is also necessary to order the Seat Ring.

4. Included also in sleeve subassembly.

Key	Description	Part Number
138	Travel Indicator Cover	
	NPS 1 / DN 25 Body	M0194580X12
	NPS 2 / DN 50 Body	M0196770X12
	NPS 3 / DN 80 Body	M0194870X12
	NPS 4 / DN 100 Body	M0210910X12
139	Travel Indicator Stem	
	NPS 1 / DN 25 Body	ERSA01803A0
	NPS 2 / DN 50 Body	ERSA01801A0
	NPS 3 / DN 80 Body	ERSA01802A0
	NPS 4 / DN 100 Body	ERSA02571A0
140	Indicator Bushing	ERSA02798A0
141	Travel Indicator Fitting	
	NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies	ERSA02569A0
	NPS 4 / DN 100	ERSA01824A0
142A*	O-ring	
	Nitrile (NBR)	M6010001X12
	Fluorocarbon (FKM)	M6020066X12
142B*	O-ring	
	Nitrile (NBR)	1H2926X0032
	Fluorocarbon (FKM)	1H2926X0022
143*	O-ring	M6020005X12
144	Spring Collet	M019218X012
145	Retaining Ring	M4500325X12
146	Protective Cap (EZHSO Series only)(4)	GE30222X012
147	Stem (EZHSO Series only)(4)	
	NPS 1 / DN 25 Body	GE29590X012
	NPS 2 / DN 50 Body	GE26223X012
	NPS 3 / DN 80 Body	GE44786X012
	NPS 4 / DN 100 Body	M0303340X12
148	Upper Spring Seat (EZHSO Series only)(4)	
	NPS 1 / DN 25 Body	GE29587X012
	NPS 2 / DN 50 Body	GE26227X012
	NPS 3 / DN 80 Body	GE29302X012
	NPS 4 / DN 100 Body	GE36696X012
149	Lower Spring Seat (EZHSO Series only)(4)	
	NPS 1 / DN 25 Body	GE29586X012
	NPS 2 / DN 50 Body	GE26250X012
	NPS 3 / DN 80 Body	GE29303X012
	NPS 4 / DN 100 Body	M0303360X12
150	Ring Guide (EZHSO Series only)(4)	
	NPS 1 / DN 25 Body	GE29602X012
	NPS 2 / DN 50 Body	GE28486X012
	NPS 3 / DN 80 Body	GE29307X012
	NPS 4 / DN 100 Body	M0303380X12
151	Stem Nut (2 required)(4)	
	EZHSO Series only	M5002006X12
152	Hex Nut	
	(NPS 2, 3 and 4 / DN 50, 80 and 100(4)	
	Bodies EZHSO Series only)	M5036006X12
153	O-ring (EZHSO Series only)(5)	T1230906382
154	Hex Socket Cap Screw	
	EZHSO Series only (1 required)	
	NPS 1 / DN 25 Body	FA402505X12
	NPS 2 / DN 50 Body	M5011014X12
	NPS 3 / DN 80 Body	FA402036X12
	NPS 4 / DN 100 Body(5)	FA402505X12
155	Stem Nut	
	NPS 1 / DN 25 Body EZHSO Series only(4)	GE29864X012
156	Upper Spring Seat Adapter (EZHSO Series only)(4)	
	NPS 4 / DN 100 Body	M0303350X12
157	Anti-friction ring (EZHSO Series only)	
	NPS 4 / DN 100 Body	GE44971X012
158	O-ring (EZHSO Series only)	
	NPS 4 / DN 100 Body	GE45201X012
159	Check valve	15A6011E182
160*	Back-up ring (2 required)	1N659106242
192	Travel Indicator Scale	M0201990X12
193	Washer (EZHSO Series only)	FA405007X12

*Recommended spare part
4. Included also in sleeve subassembly.
5. Included also in sleeve subassembly (NPS 1, 2 and 3 / DN 25, 50 and 80).

Mounting Parts (Figures 10 through 12)

Standard Configurations for Single Pilot and Working Monitor Pilots

Key	Description	Part Number
46	Pipe Nipple	- - - - - - - - - -
47	Pipe Nipple	- - - - - - - - - -
	(3 required for Working Monitor Pilots)	
	(45° Internal Elbow for Working Monitor Pilots only)	

Pre-Piped Pilot Supply Single-Pilot Configuration (with standard body or tapped inlet body)

Key	Description	Part Number
47	Pipe Nipple	- - - - - - - - - -
48	Tube Elbow (4 required)	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
49	External Tube Connector	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
51	Pipe Cross	- - - - - - - - - -
52	Tubing	- - - - - - - - - -

Pre-Piped Pilot Supply and Pilot Exhaust Single-Pilot Configuration (with tapped inlet and outlet body)

Key	Description	Part Number
47	Pipe Nipple	- - - - - - - - - -
48	Tube Elbow (5 required)	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
49	External Tube Connector	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
50	Pipe Tee	- - - - - - - - - -
51	Pipe Cross	- - - - - - - - - -
52	Tubing	- - - - - - - - - -
55	Internal Connector	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -

Pre-Piped Pilot Supply Working Monitor Pilot Configuration (with standard body or tapped inlet body)

Key	Description	Part Number
47	Pipe Nipple	- - - - - - - - - -
48	Tube Elbow	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
49	External Tube Connector	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
50	Pipe Tee	- - - - - - - - - -
51	Pipe Cross	- - - - - - - - - -
52	Tubing	- - - - - - - - - -
54	Pipe Nipple	- - - - - - - - - -

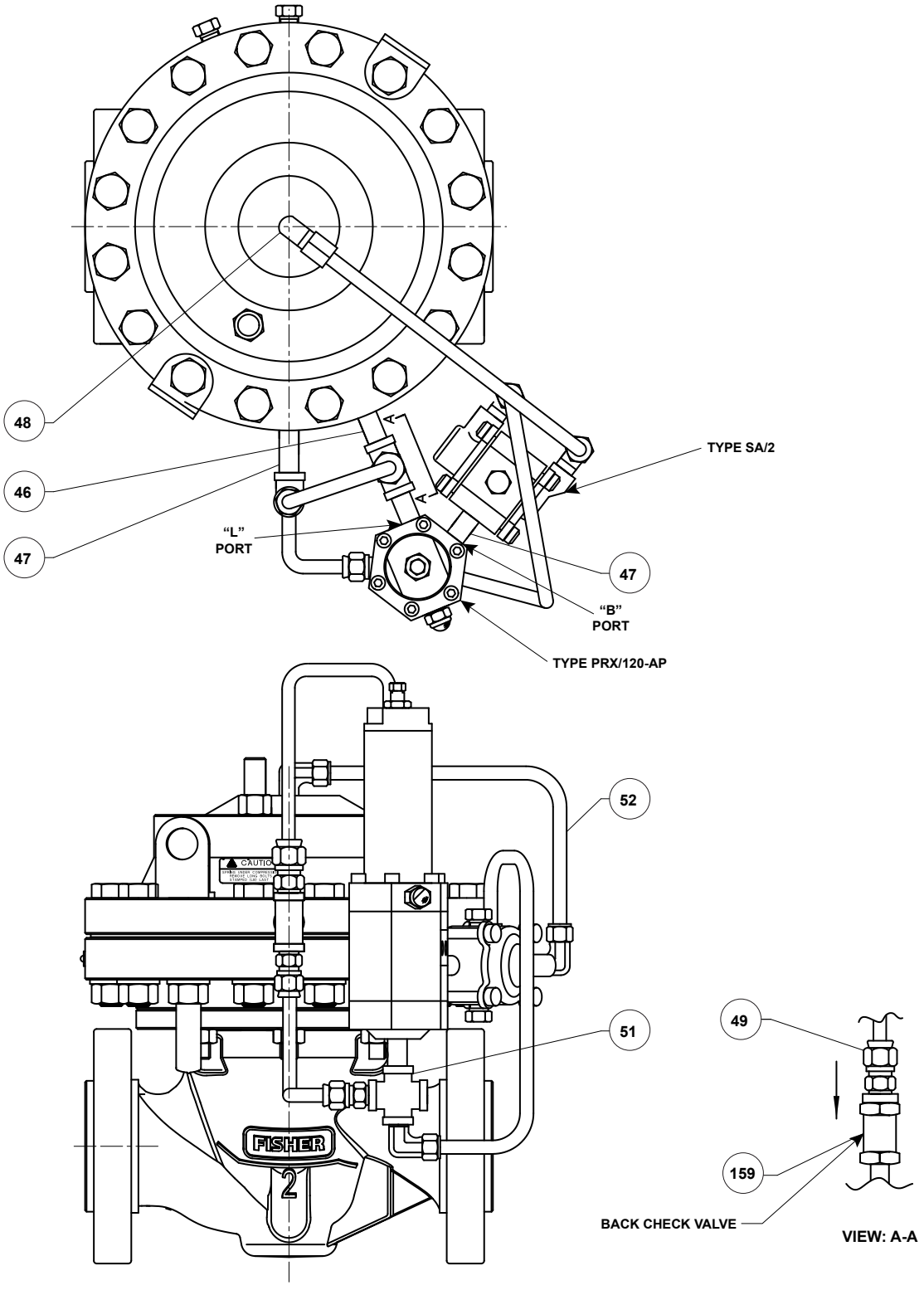


Figure 10. *EZH Series Single Pilot Mounting Assembly*

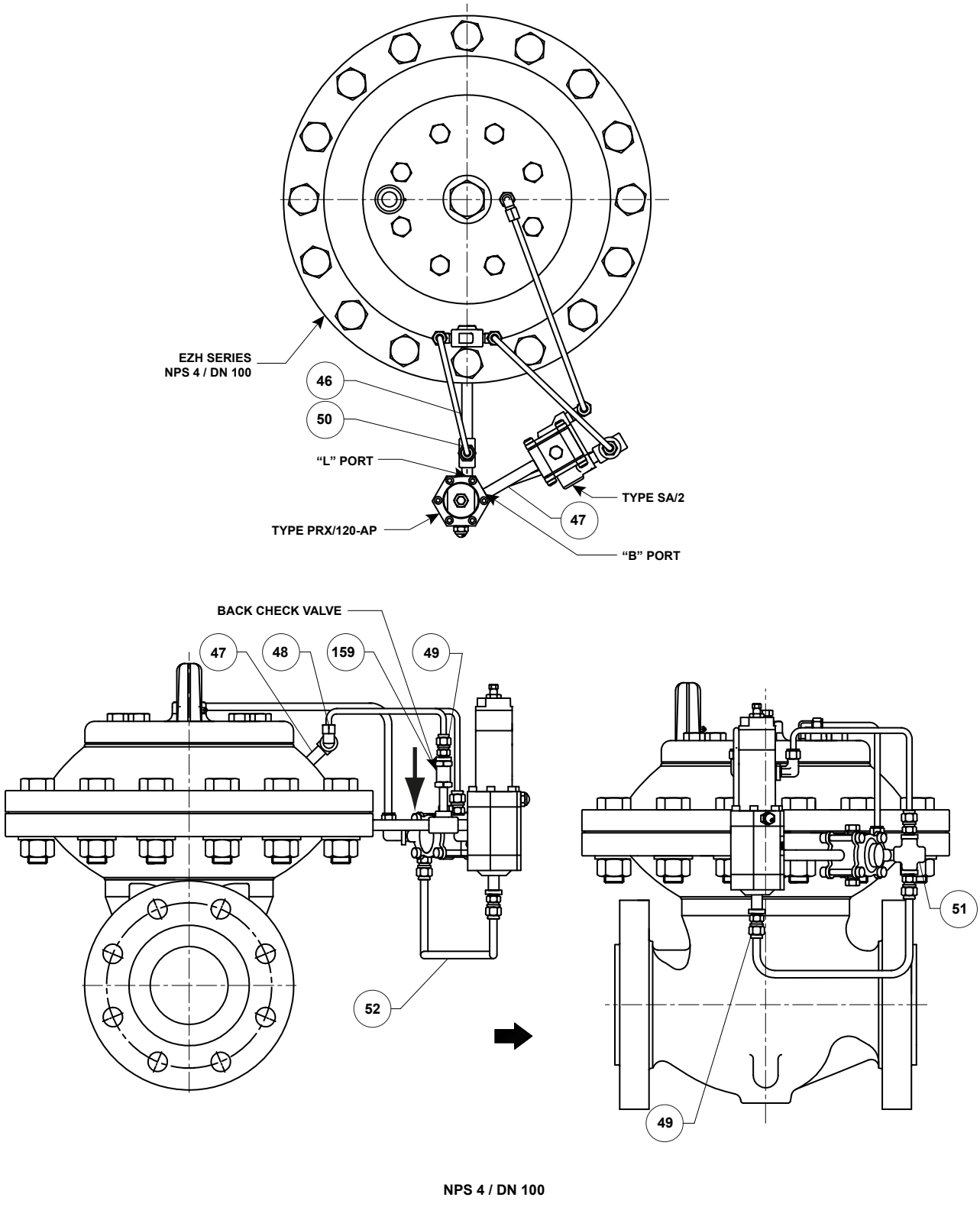


Figure 10. *EZH Series Single Pilot Mounting Assembly (continued)*

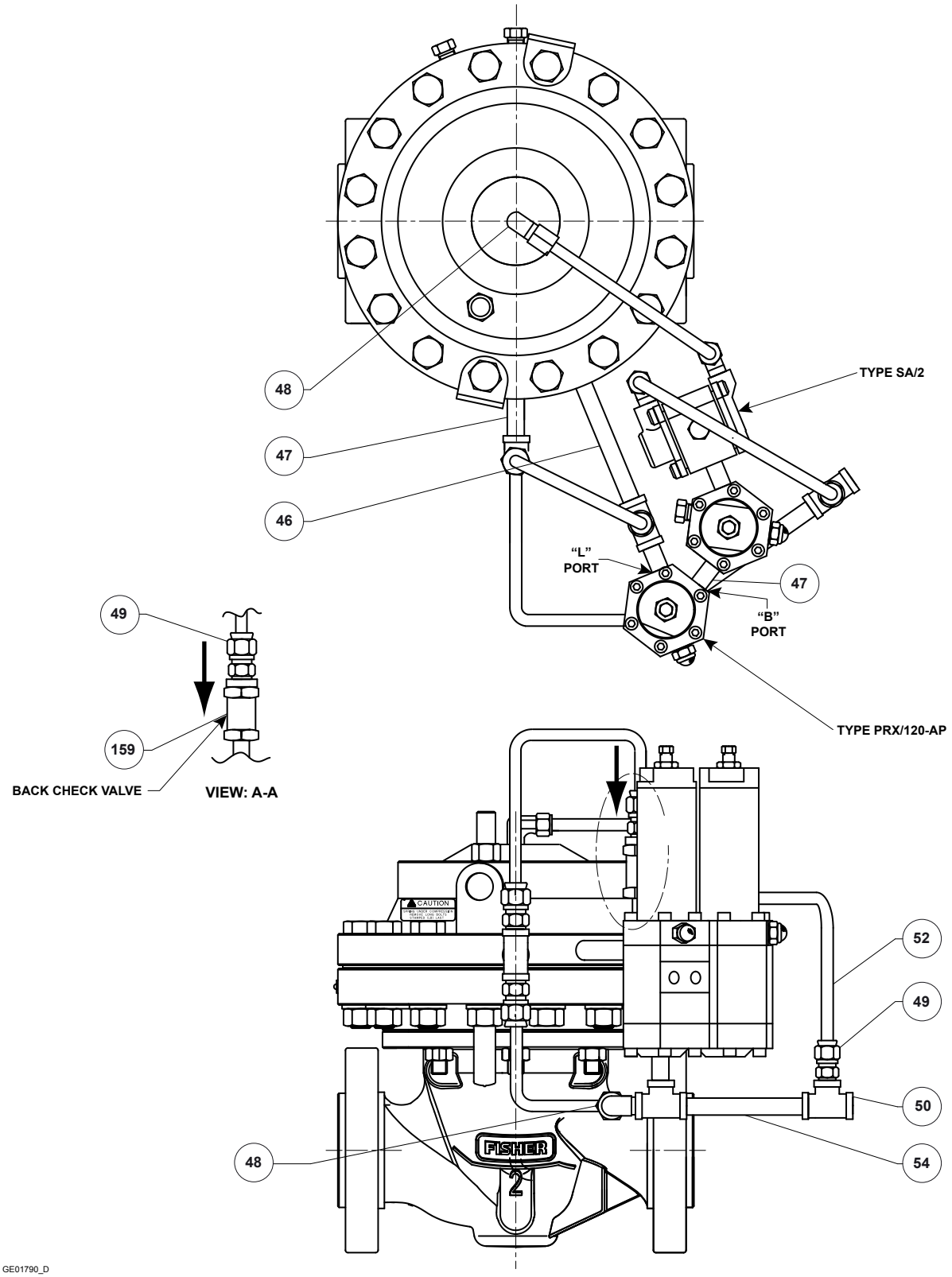


Figure 11. *EZH Series Working Monitor Pilot Mounting Assembly*

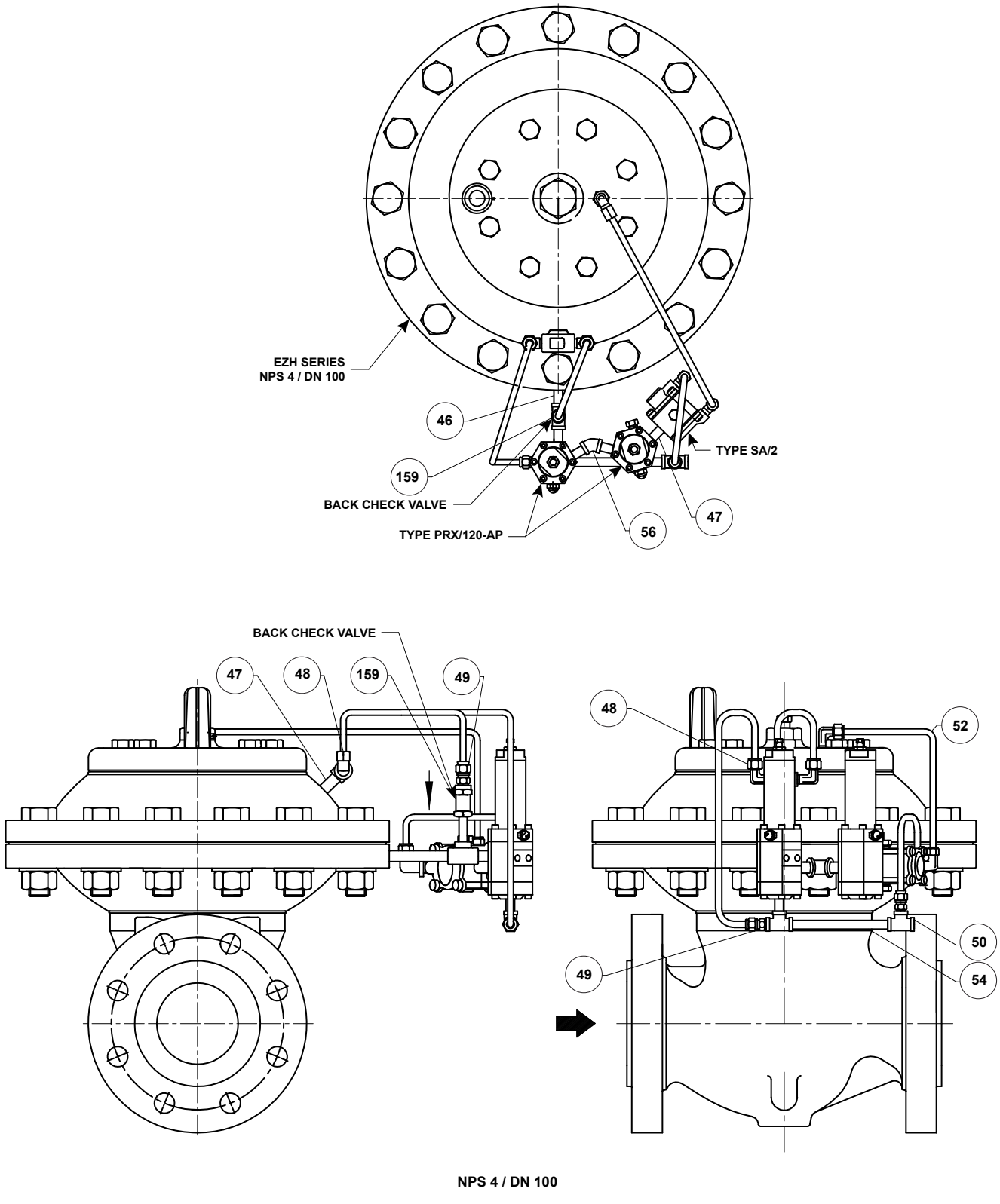
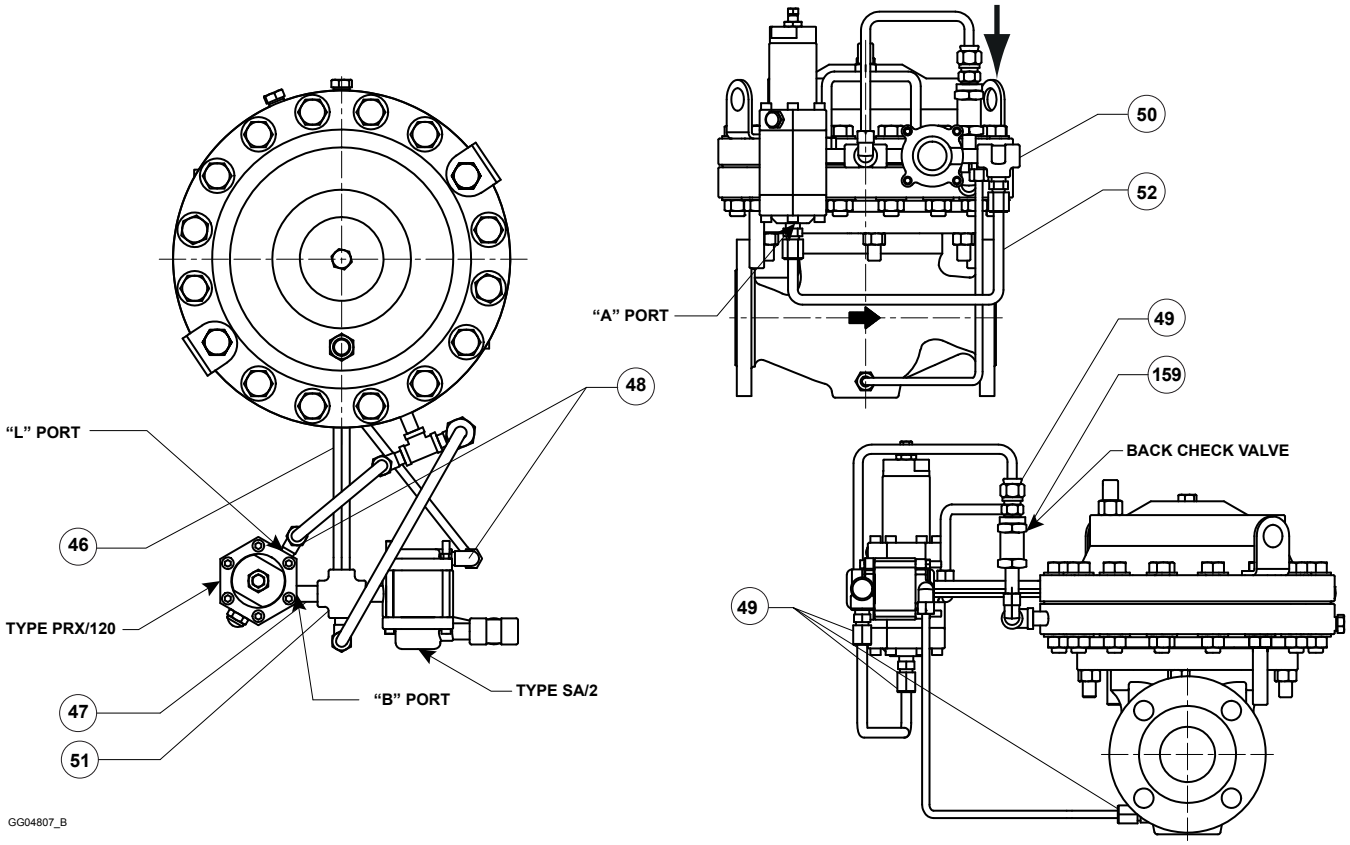
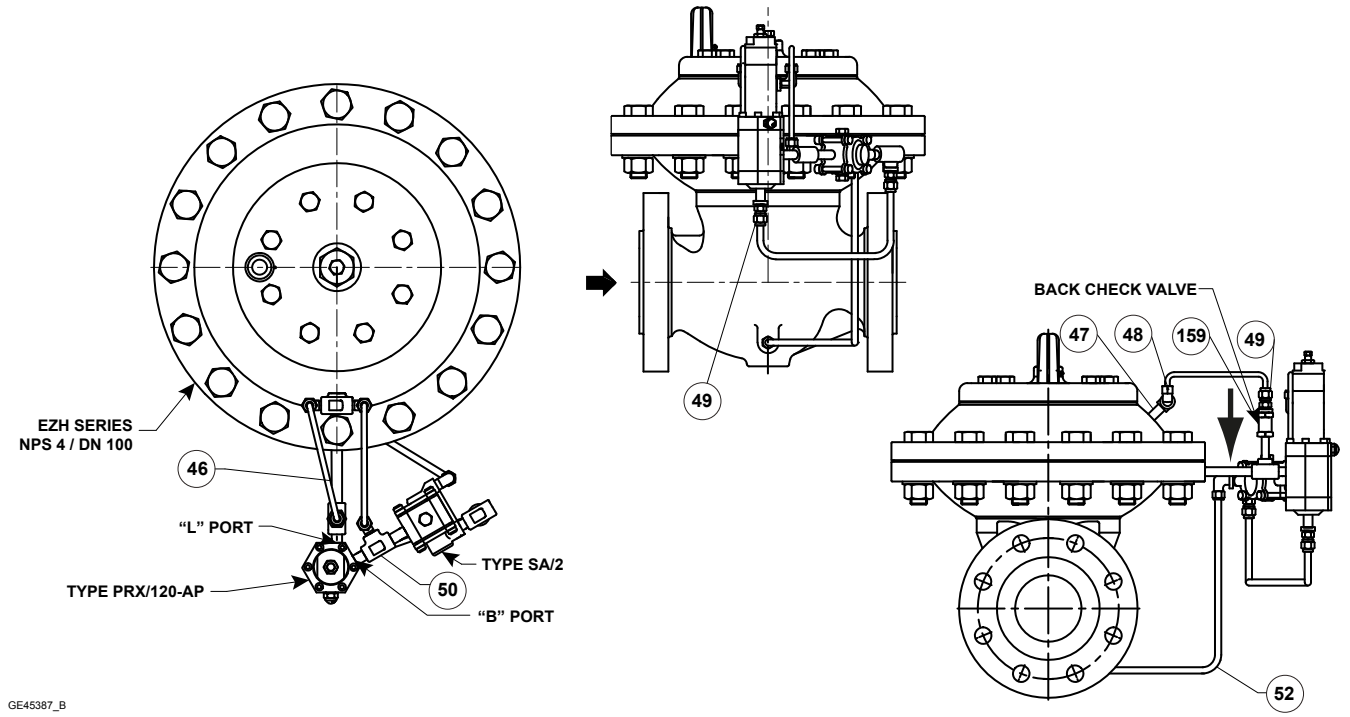


Figure 11. *EZH Series Working Monitor Pilot Mounting Assembly (continued)*

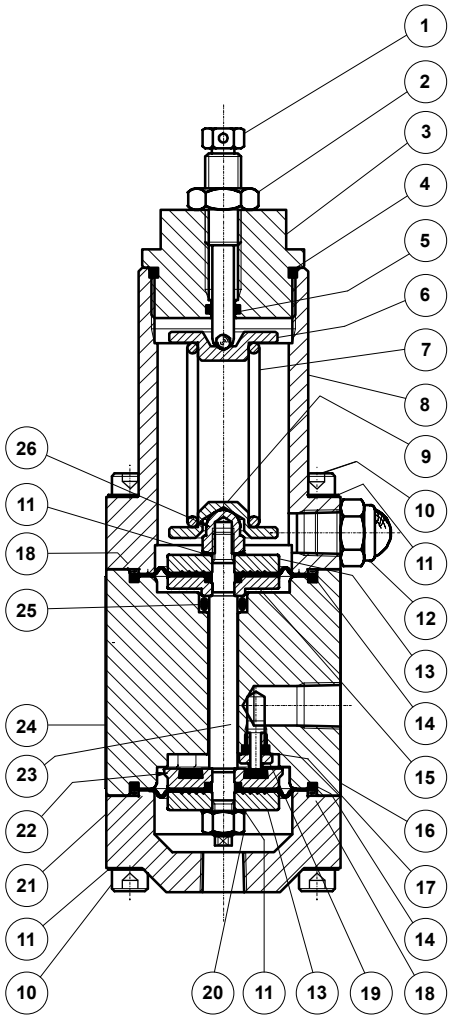


NPS 1 THROUGH 3 / DN 25 THROUGH 80

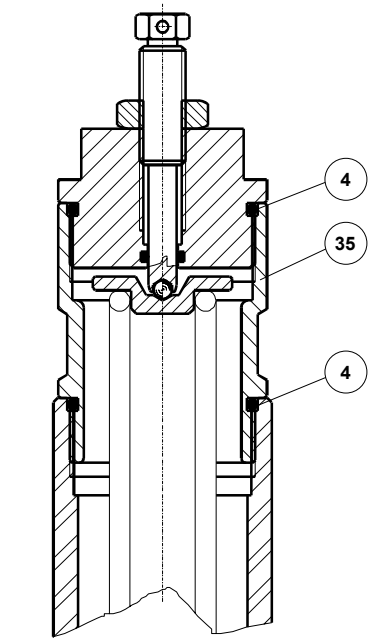


NPS 4 / DN 100

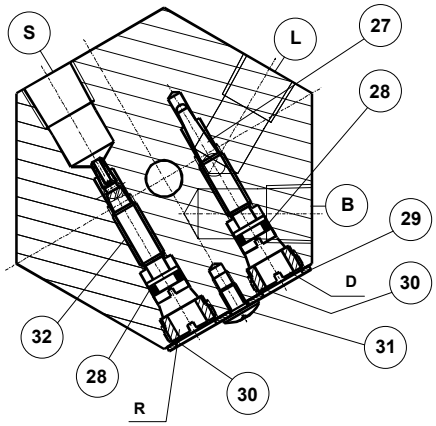
Figure 12. *EZHSO Series Single Pilot Mounting Assembly*



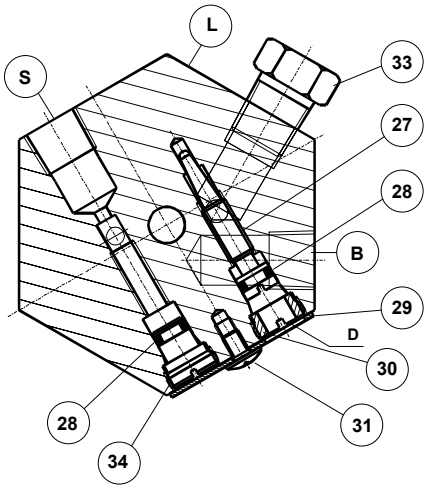
TYPE PRX/120 OR PRX/125



TYPE PRX/120-AP OR PRX/125-AP



TYPE PRX/120 OR PRX/120-AP



TYPE PRX/125 OR PRX/125-AP

S - BLEED PORT
B - SUPPLY PORT
L - LOADING PORT
A - SENSING PORT
D - DAMPER
R - RESTRICTOR

Figure 13. *PRX Series Pilot Assemblies*

Pre-Piped Pilot Supply and Pilot Exhaust Working Monitor Pilot Configuration (with tapped inlet and outlet body)

Key	Description	Part Number
47	Pipe Nipple (2 required)	- - - - - - - - - -
48	Tube Elbow (5 required)	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
49	External Tube Connector (2 required)	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -
50	Pipe Tee	- - - - - - - - - -
51	Pipe Cross	- - - - - - - - - -
52	Tubing	- - - - - - - - - -
53	90° NPT Pipe Elbow	- - - - - - - - - -
54	Pipe Nipple	- - - - - - - - - -
55	Internal Connector	
	Steel Fittings with Stainless steel Tubing	- - - - - - - - - -
	Stainless steel Fittings and Tubing	- - - - - - - - - -

PRX Series Pilots (Figure 13)

Key	Description	Part Number
	Parts Kits	
	Elastomer Parts Kits	
	(include keys 4, 5, 14, 17, 18, 25 and 28)	
	Types PRX/120 and PRX/125	
	Nitrile (NBR)	RPRX00X0N12
	Fluorocarbon (FKM)	RPRX00X0F12
	Types PRX/120-AP and PRX/125-AP	
	Nitrile (NBR)	RPRX00X0N12
	Fluorocarbon (FKM)	RPRX00X0F12
1	Adjusting Screw	M0253340X12
2	Locknut	M5036008X12
3	Cap	M0253350X12
4*	Upper Cover O-ring	
	Nitrile (NBR)	M6010178X12
	Fluorocarbon (FKM)	M6020112X12
5*	O-ring	
	Nitrile (NBR)	M6010005X12
	Fluorocarbon (FKM)	M6020001X12
6	Upper Spring Seat	M0253360X12
7	Spring	See Table 2
8	Upper Cover	M0298540X12
9	Lower Spring Seat	M0253380X12
10	Machine Screw	M5011018X12
11	Washer	M5055001X12
12	Filter	M4500367X12
13	Upper Diaphragm Plate	M0253390X12
14*	Diaphragm	
	Nitrile (NBR)	GG05785X012
	Fluorocarbon (FKM)	GG05785X022
15	Lower Diaphragm Plate	M0253410X12
16	Body	M0253310X12
17*	Orifice O-ring	
	Nitrile (NBR)	M6010003X12
	Fluorocarbon (FKM)	M6020126X12
18*	Lower Cover O-ring	
	Polyurethane (PU)	M6010098X12
	Fluorocarbon (FKM)	M6020132X12
19	Orifice	M0253440X12
20	Nut	M5002004X12
21	Lower Cover	M0298600X12
22*	Pad Holder	
	Polyurethane (PU)	M0253400X12
	Fluorocarbon (FKM)	M0279950X12
23	Stem	M0253430X12
24	Nameplate	- - - - - - - - - -
25*	Stem O-ring	
	Nitrile (NBR)	M6010223X12
	Fluorocarbon (FKM)	M6020133X12
26	Upper Diaphragm Nut	M5028005X12
27	Damper Adjusting Screw with Hole	M0253480X12
28*	Restrictor/Damper O-ring	M6020054X12
29	Damper/Restrictor Plate	
	Types PRX/120 and PRX/120-AP	M0254400X12
	Types PRX/125 and PRX/125-AP	M0257930X12
30	Ring Nut	M0253490X12
31	Nameplate Screw	M5061001X12
32	Restrictor Adjusting Screw with Hole	M0253480X12
33	Plug (Types PRX/125 and PRX/125-AP only)	M0257920X12
34	Plug (Types PRX/125 and PRX/125-AP only)	M4500328X12
35	Spring Barrel Extension for AP	M0274100X12

Type SA/2 Pilot Supply Filter Regulators (Figure 14)

Key	Description	Part Number
	Parts Kits	
	Elastomer Parts Kits	
	(include keys 6, 12, 13, 15 and 18)	
	Nitrile (NBR)	GD89995X012
	Fluorocarbon (FKM)	GD89995X022
1	Spring	M0192560X12
2	Socket Head Cap Screw	M5058003X12
3	Washer	M0248490X12
4	Plate	M0174470X12
5	Regulator Seat	M0200830X12
6*	O-ring	M6010013X12
7	Body	M0297920X12
8	Filter Net	M0102200X12
9	Washer	M5057002X12
10	Nut	M5060005X12
11	Filter Cover	M0174411X12
12*	Felt	M0102210X12
13*	O-ring	M6010095X12
14	Spring	M0105970X12
15*	Pad Holder Unit	M0233370X12
16	Nameplate	M0300470X12
17	Screw Unit	M0200790X12
18*	Diaphragm	M0174460X12
19	Regulator Cover	M0239890X12
20	Spring Washer	M5001003X12
21	Nut	M5006012X12

*Recommended spare part

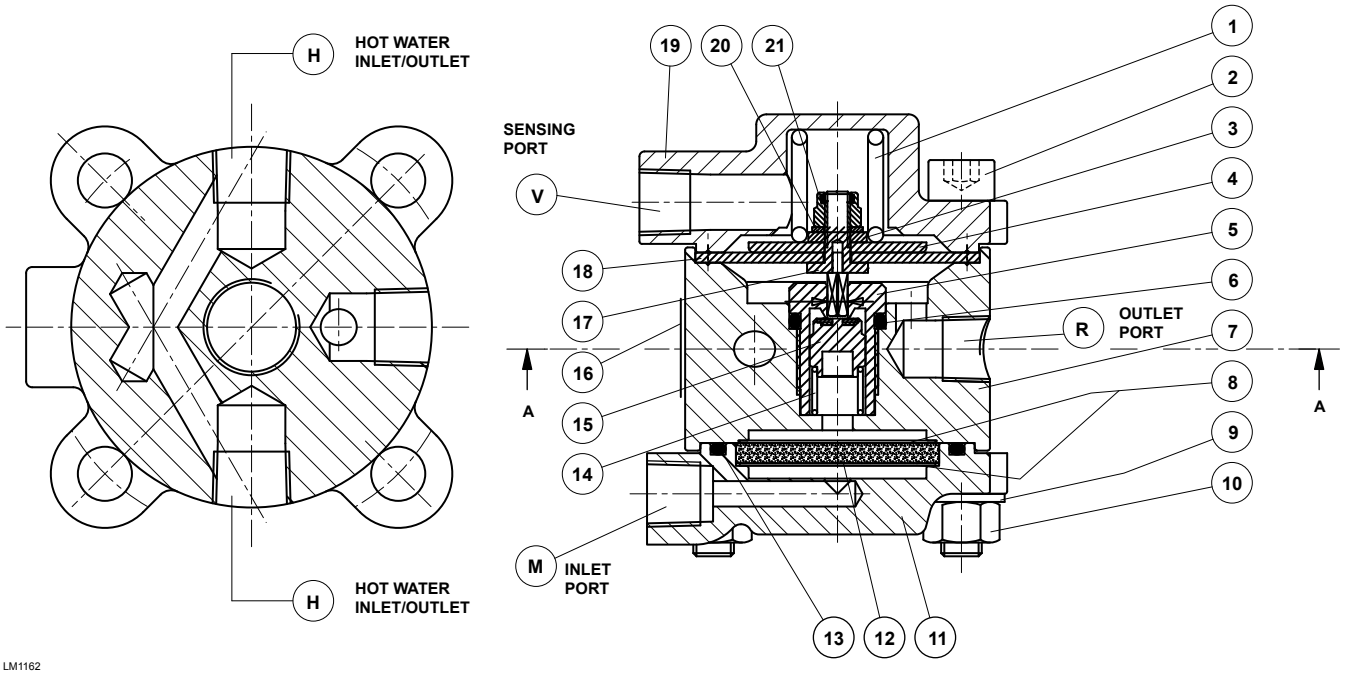


Figure 14. *Type SA/2 Pilot Supply Filter Assemblies*

Industrial Regulators

Emerson Process Management
Regulator Technologies, Inc.

USA - Headquarters
McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside U.S. +1 972 548 3574

Asia-Pacific
Shanghai 201206, China
Tel: +86 21 2892 9000

Europe
Bologna 40013, Italy
Tel: +39 051 419 0611

Middle East and Africa
Dubai, United Arab Emirates
Tel: +971 4811 8100

Natural Gas Technologies

Emerson Process Management
Regulator Technologies, Inc.

USA - Headquarters
McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside U.S. +1 972 548 3574

Asia-Pacific
Singapore 128461, Singapore
Tel: +65 6770 8337

Europe
Bologna 40013, Italy
Tel: +39 051 419 0611
Chartres 28008, France
Tel: +33 2 37 33 47 00

Middle East and Africa
Dubai, United Arab Emirates
Tel: +971 4811 8100

TESCOM

Emerson Process Management
Tescom Corporation

USA - Headquarters
Elk River, Minnesota 55330-2445, USA
Tels: +1 763 241 3238
+1 800 447 1250

Europe
Selmsdorf 23923, Germany
Tel: +49 38823 31 287

Asia-Pacific
Shanghai 201206, China
Tel: +86 21 2892 9499

For further information visit www.emersonprocess.com/regulators

The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners. Fisher is a mark owned by Fisher Controls International LLC, a business of Emerson Process Management.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Process Management Regulator Technologies, Inc. does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Process Management Regulator Technologies, Inc. product remains solely with the purchaser.

EMERSON
Process Management

©Emerson Process Management Regulator Technologies, Inc., 2003, 2015; All Rights Reserved